POPULAR Computing WEEKLY

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MSX 2 ready to arrive this year

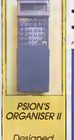
- **JVC is to preview MSX 2 this month – autumn launch expected**
- **Toshiba, Mitsubishi are waiting for market to be established**
- **Sony aiming for 1987 MSX plus CD-ROM machine launch**

Full details below and inside

THE MSX working group of companies is gearing up to the launch of MSX 2 However only one. JVC has definitely decided to introduce its MSX 2 in the UK, although many MSX 2 models have been available in Japan for some time now The rest are understandably cautious following the failure of the first MSX machines to gain any hold on the market

JVC will preview its new MSX – with 128K Ram increased video Ram which en-

continued on page 4 ▶



PSION'S ORGANISER II

Designed with the consumer in mind

Full review on P11

Pyracurse – new from Hewson

PYRACURSE (pictured above) is the forthcoming title from Hewson and uses the same style of arcade-adventure game play as *Avalon* and *Dragontorc*

Pyracurse features a newspaper reporter, Legless O'Donnell, battling to save his assistant Daphne from the curse of the ancient South American god Xipe Totec O Donnell is aided by Kile, an archaeologist and Frozbic a dog

Pyracurse is due for release on the Spectrum at the end of June priced at £9 95

SPECIAL SUPPLEMENT

MICROS IN EDUCATION

- Can a micro help you learn a foreign language?
- Adult education – the computer's potential
- Extensive dealer guide

Contents



◀HARDWARE

Special Supplement
Education

In this week's pull-out supplement:
- A survey of foreign language tutorials
- A profile on Mirrorsoft, one of the leaders in the field and the people responsible for computerised Mr Men
- Science and the schoolroom micro. A look at very high tech software
- A comprehensive nationwide list of specialist dealers in the education field

SOFTWARE▶

GAMES▶

◀PROGRAMMING

REGULARS▶

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ABC

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Commodore gears up for UK Amiga launch

THE official launch of the much heralded, much publicised Commodore Amiga will undoubtedly be the star attraction of the week's Commodore Computer show

Apart from the machine itself, part of the floor space will be devoted to the 'Amiga village', an area where third party companies will demonstrate products and software for the Amiga. Ariolasoft's *Deluxe* range will be launched (see *Popular Computing Weekly* March 27) Business applications will be displayed by Taurus, Sophus Software and Eldersoft

Other show attractions will take place in the Commodore Theatre. Ex-Yes keyboard player Rick Wakeman will be making a special appearance performing on Commodore's latest range of music add-ons and software for the 64/128

Amiga – the star attraction

The Commodore Computer show takes place from May 9-11, at Novotel Hammersmith London W6. Details from the organiser Database Exhibitions on 061-456 8835

A full report on the show will appear in next week's Popular Computing Weekly

Atari confirms 520STFM held back until September

FOLLOWING the launch of two new machines, the 520STM and 1040 STF, at the Atari Computer show in April, Atari has now announced that the third, the 520STFM, is now being held back until later this year

Originally, Atari had indicated that the 520STFM which includes a built-in 3½ inch floppy disc drive and TV modulator, would be launched about six weeks after the Atari show

We have now decided to hold it back until September,' said Rob Harding, Atari UK's marketing manager

The 520STFM will be one of Atari's new products on display at the September *Personal Computer World* show

Other products announced in April that are still to appear are the IBM emulator for the 1040STF, the blitter chip for the same machine and the direct competitor to Amstrad's PCW 8256. All are scheduled for 'later in the year' though Harding added that the emulator would be one of the September launches

Psion announces new hand-held computers

PSION has launched the follow-up to its organiser pocket computer

Imaginatively titled Organiser II, two versions of the new model will initially be available, the CM and XP

Organiser II uses a new language OPL (organiser programming language), which contains 112 commands and full database handling functions, written by Psion itself

The CM has an on-board 8K Ram, 24K Rom, and a slot at the top which can take an RS232 connection or a mains adaptor

The XP has 16K Ram, 32K Rom, and in addition to the RS232 link and mains adaptor will also take a bar code reader and magnetic card reader

Psion is aiming the computer at both consumer and business users. For the consumer, it can be used as a database, full function calculator, or with the software datapaks available from Psion. Three are available immediately: a *Finance Pack* (for banking records), a *Maths Pack* and a *Concise Oxford Dictionary* spelling checker

Psion hopes the XP model will appeal to corporate users as did the original Organiser

The Organiser II CM costs £99.50, the XP £139.50. For full details, see this week's review on page 11

Commodore looks for Corby plant buyers

COMMODORE has confirmed that its Corby plant is up for sale (see *Popular Computing Weekly*, March 27)

Commodore plans to sell the site and then lease back part of it to house the 160 staff

'It's a very large facility, about 210 000 square feet,' said Commodore UK's acting general manager Chris Kaday. "There are only so many such sites in the UK, and only so many looking for this sort of place. We have not got very far yet"

ZX microfair

THE 19th ZX Microfair takes place this Saturday (May 10) at the Royal Horticultural Hall, near Victoria Station in London. Opening time is 10.00 am, closing time 6.00pm

MSX 2 ready for this autumn

continued from page 1

ables 256 colours to be used on screen simultaneously, 80 column display with keyboard detachable from the main processor unit – at its trade show later this month. 'This is a top-range model which has only just been introduced in Japan,' said Pieter Glas of JVC. 'We want to re-instil excitement and enthusiasm about MSX, and we hope to sell it in the UK before the end of 1986 '

Glas did not want to put a definite price on the machine but he did say, ' I suspect it will not be seen at all as a low-cost computer "

JVC is particularly keen to pursue the video-applications route with its MSX 2. Sony, however, one of the leading researchers in CD-Rom technology, plans to integrate a read-write CD-Rom with its future MSXs

Sony's product manager, Joe Yakota, said, "We have nothing planned for 1986 but our 1987 plans are more positive. Next year, we can initiate our CD-Rom with MSX for business applications – though that will be MSX at a very advanced level. It is an area of huge potential and we're looking at around Christmas 1987 to introduce that '

JVC's MSX – to be superseded

Other MSX companies are more wary. For Toshiba, which was the first company to release a MSX machine in the UK, Chris Greet said 'At the moment we're concentrating on getting software together – so we don't look like being the first with MSX 2

Steve Wankling at Mitsubishi had a similar tale. "We're keeping a close watch on the market – Mitsubishi had always joined in established markets rather than innovating. But since we're producing MSX 2 in Japan we could launch here at short notice – or we could leave out MSX 2 in the UK and release more advanced versions instead

Spellchecker for Locoscript to be released by Arnor

LOCOSCRIPT the word processing package bundled with the PCW machines, is to get a spelling checker

Arnor publisher of the *Protext* word processor series for the CPC series is to convert the spelling checker *Prospell* for the PCW 8256 and 8512

The PCW version of *Prospell* will run with *Locoscript*, *New Word* and *Wordstar* files Its dictionary using English rather than American spellings, contains just over 31,000 words, with the facility to add about 20,000 more It also has search – using wild card – options and an anagram facility Checking speed is about 1600 2000 words per minute

Later this year Arnor will release *Protext* for the PCW machines as well *Prospell* is scheduled for a mid-June release at £39 95 the *Protext* package will contain the word processor, *Promerge* and *Prospell* on one disc for £79 95 Details from Arnor at The Studio Ledbury Place, Croydon, Surrey

Spectrum looks at PC compatibles

FIREBIRD has set up new distribution avenues following the liquidation of Hi-tech its previous agent, and has accordingly rearranged its release schedules

It now hopes to clear its backlog of delayed launches by the end of the month which means that the fully debugged Amstrad version of *Elite* and *Rasputin* on the Amstrad should be available soon

Other products affected by Hi-tech s collapse include Spectrum 128 versions of the two above games, Amstrad versions of *Shadowfire*, and Odin's *Robin of the Wood* and *Nodes of Yesod*, plus *Comet Game* and *Bounces* on the C64 These should all now be released within the next week or so

Rainbird and Level 9 in adventure link

ADVENTURE specialist Level 9 has finalised a publishing agreement with British Telecom division Rainbird, to write three new products for Rainbird in the next year to be implemented over ten different machines

The deal does not affect Level 9 s autonomy, and the company will continue to publish titles under its own label

The first package to be released from Level 9 by Rainbird will be *The Colossal Trilogy* on the Atari ST although it will probably now be retitled

In its own right Level 9 is developing two titles for Mosaic, *The Growing Pains of Adrian Mole* and *The Archers* and putting the finishing touches to *The Price of Magik*.

Firebird sorts out release dates

THE Spectrum franchise group is considering the introduction off a cheap IBM PC compatible in the UK after displaying one at the recent UK CES to guage customer reaction The machine specifically being looked at apparently comes from Korean company Goldstar, whose MSX machine Spectrum distributed last year

Spectrum chairman Mike Stern said We are looking into the possibility but nothing is certain yet He declined to give any indication as to possible pricing

Mike Stern

Stern also countered the possibility of beating Amstrad to the launch of its PC 'I can see the need for hurry in that area – but perhaps we are not trying to beat Amstrad,' he said

Letters

Basic quirks

I've just read the two letters concerning the ST's Basic in *Popular Computing Weekly*, April 24. The quirks in the Basic are undoubtedly there, but there is something fundamentally wrong with the views in the letters.

When I sold my Amstrad and bought an ST I was moving away from something – Basic. While Basic may be perfectly adequate on an 8-bit 64K micro, programming Basic on a 16-bit 'megacomputer' is like buying an IBM PC to play *Space Invaders*.

The ST is not primarily meant for running Basic. It's there for running far fast, much better languages like C, Pascal, Forth, etc. In my opinion, the Basic provided with the Atari ST is something included to attract the upgraders from further downmarket.

As an example of how Basic encourages bad programming practice, take Mr Hewson's program (Letters, *Popular*, April 24) which purports to show a bug in ST Basic.

Storing numbers in string variables has never been a very good idea. It's slower, more memory consuming and makes the program confusing. I am also having difficulty on my machine spotting his bug – I have one of the earliest releases of TOS, which means I should have the bug if it exists. Three of my friends with newer TOS, releases also tried Mr Hewson's prpgram, and foued that it always produced 36.

Kristian Rosenvold
Norway

Star Letters

Every week, starting with this issue, *Popular Computing Weekly* will be offering prizes for Star Letters. The most intelligent, pertinent, helpful, or simply interesting, item in our postbag each week will win the writer a free year's supply of exclusive *Popular Computing Weekly* binders.

The chance to clear up that pile of old Populars under the bed, and keep them neatly and tidily is yours, so get writing today. Send your thoughts to Letters, *Popular Computing Weekly*, 12-13 Little Newport Street, London WC2H 7PP.

If my memory serves me right he'll need plenty of space and lots of dry ice

Happy owner

May I add my fourpenn'orth to your Amstrad/Sinclair correspondence.

I am the satisfied owner of Amstrad's humblest offering – the Arnold or CPC464. After a ZX 81, an Oric and a rubber Spectrum, it was a revelation.

A couple of years ago, I ordered a QL from Sinclair and was told delivery would be in 28 days. After the 28 days expired I phoned several times receiving different reasons for the non-appearance of the machine, so I decided to cancel and wait for an Amstrad.

My Arnold was one of the first and has been used constantly. It has never missed a beat, has been 100% reliable and when I added one of the first disc drives even better.

A significant point is that when I ordered the disc drive from Amsoft I was quoted 28 days like Sinclair but I received my order within a week.

The quality of the machine and the fact that Amstrad seemed invariably to keep its promises made them an unusual company in the computer world – so I bought some shares. Since then the shares have rocketed and I have made enough paper profit to pay for all the Amstrad hardware I have bought several times over.

Uncle Clive may be a brilliant brain but I say 'thank God for Alan Sugar'. He's got his feet firmly on the ground.

D Gibson
Llandudno Junction
Gwynedd

Star Letter

Create workspace

Have you ever worked away on a Basic program for the Spectrum, only to find when you are well into it, that you need to test a subroutine before incorporating into your program?

Ordinarily, to create workspace to try out your ideas, you would probably *Save* the program written so far, clear the Spectrum memory, enter the subroutine you want to test, and then re*Load* the program to continue composing.

Not any more! Try this. Enter as line 1 at the head of your program,

```
1 LET x=23637: LET z=PEEK x+256*PEEK (x+1): Print z: Print (z+1): STOP
```

Enter *Run 1* and note down the two numbers given. Now change statements 3 and 4 to make line 1 read

```
1 LET x=23637: LET z=PEEK x+256*PEEK (x+1): POKE z,64: POKE (z+1),0: STOP
```

Enter *Run 1* and all the program lines after line 1 will have disappeared!

Now you can enter your subroutine or other lines you want to test after line 1, even using the same line numbers, and *Run* them to get them right.

To return to your original program, it is essential to delete your test lines individually in the usual way (enter the line number you wish to delete as a direct command, and press *Enter*), enter *Run 1* (to reset variable z) and then enter as a direct command

Poke z (the first number you noted), *Poke (z+1)* (the second number).

And lo and behold, your original program will re-appear!

If you want to keep some of your program lines on screen, then this routine can be entered anywhere. Then all lines following it will be temporarily deleted.

R G Luxton
Solihull
West Midlands

A year's supply of *Popular* binders is on its way to R G Luxton

Puzzle No 207

Jamie emptied his piggy-bank onto the floor. "A tidy sum," remarked his father.

"Actually there are three of each value of coin which is currently legal tender," replied Jamie. "Just enough to buy that book that you were telling me about, Dad."

"And with some money to spare," said his father. "Did you know that you can pay for the book in 186 different ways?"

"I don't understand," replied Jamie.

"Look," said his father by way of explanation. "Suppose the price was eight pence, you could pay in three different ways – a fivepenny piece, a twopenny piece and a penny, or you might pay with a five pence and three pennies, or a third way would be to pay three twopenny pieces and two pennies. In no case are more than three of any coin used in the transaction."

Now Jamie's father had remembered to include the crown (25p) in his calculation. Can you find the cost of the book?

Solution to Puzzle 202

The three distances which separate the villages are 7, 11 and 13 miles.

The *Data* lines in the program store all primes (except for the number two) up to 97. Clearly two can be discounted as this, if included, would make the total of all three even and therefore not prime. The three *For Next* loops call up all combinations of primes which have been *Read* into the array.

```
[illegible]
```

However, the question stated that the villages were connected by *straight* roads, and must therefore form a triangle. This means that the sum of the two shorter roads must be greater than the length of the longest road. Line 140 in the program tests for this.

Winner of Puzzle No 202

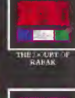
The winner is P Robinson of Carrbrook, Cheshire, who will be receiving £10.

Heavy on the Magick



CONVERSATIONS WITH APEX





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Letters

Biased attitude

I have been a reader of *Popular Computing Weekly* for quite a long time now and I was amazed when in the April 10 issue I read that you are *not* commercially biased I think you are very biased especially where makes of computers are concerned I own an Einstein machine which I find is as good if not better than most home computers but do you ever mention it in your magazine?

Perhaps we should all buy BBC/Electron Spectrum Amstrad or Commodore as these seem to be the only computers worth writing about

Surely as an unbiased magazine you could at least give some mention to the Einstein

A D Panting
Witney
Oxon

The hard fact is, that we get more contributions, either in the way of software for reviews, articles, or listings for the other machines you mention We cannot print articles for which we have no copy!

That does not mean, however, that we do not welcome or publish information on micros such as the Einstein. If you look through your back issues, you will find news items, and New Releases, etc, when we have had the information to do so

Sales service

I am writing about the effect on repairs of the sale of Sinclair computers to Amstrad

I sent my computer to Sinclair for repair under its after-sale service on March 17 1986 I duly received a card from them saying that my repair was being carried out on March 27 I had not received the computer back by April 17 so I tried ringing Sinclair at Camberley, but with no luck

When the sale to Amstrad was made public I rang Amstrad to see if anyone knew anything about my problem but I was told that as my Spectrum was not new nothing could be done Is this how Mr Sugar is going to treat old Spectrum owners?

K W Sanders
Malvern
Worcs

Readers' Chart No 71

1	(1)	Elite *(Spectrum/C64/Amstrad/BBC)*	**Acornsoft/Firebird**
2	(2)	Uridium *(C64)*	**Hewson**
3	(4)	Commando *(Spectrum/C64/C16)*	**Elite**
4	(3)	Lord of the Rings *(Spectrum/C64/Amstrad)*	**Melbourne House**
5	(7)	Movie *(Spectrum)*	**Imagine**
6	(10)	Way of the Tiger *(Spectrum/Amstrad)*	**Gremlin**
7	(–)	Green Beret *(Spectrum)*	**Imagine**
8	(–)	Superbowl *(C64/Spectrum)*	**US Gold**
9	(–)	Yie Ar Kung Fu *(Various)*	**PSS**
10	(–)	V *(Spectrum/C64/Amstrad)*	**Ocean**

Winning Phrase No 72: "Dum Dum Roo", from Murat Aydin of London E5, who wins £25

Second Class

A month ago, my Spectrum Plus stopped displaying colours so I sent it off to Sinclair Research The very next week your magazine announced the Amstrad takeover

Speaking to Amstrad on the telephone today I learnt that my Spectrum would be returned to me unrepaired Then I will have to take it to Menzies which will return it to Amstrad, after a short delay of some weeks

Until now I thought Amstrad's marketing and after-sales service was one of the best available When it bought Sinclair rights, I expected Sinclair users to be treated in the same way as its other customers Wrong! It seems that the Spectrum is a second class product in Amstrad's view

D Scott
Hawick



PLEASE WAIT

An everyday utility?

John Cook takes a look at the up-graded Organiser – Psion's Organiser II

Hands up all those still using their Psion Organiser then? Mmmmm – not that many then, but it only takes a close look around a Marks and Spencer checkout to realise that the strange little hand held machine cannot simply be slotted into the technological weirdism category

The original Organiser was a limited success in some corporate circles but certainly didn't make any impression on the consumer market Psion are hoping to kill both birds with this particular upgraded stone, the Psion Organiser II

The Organiser II is available in two versions the CM (with 24K Rom containing operating system, programming language plus other inbuilt functions and 8K of Ram) or the XP (32K Rom – the extra code mostly consisting of drivers for a Bar Code and Magnetic Card reader and 16K of Ram) The XL also has the ability to additionally use 128K Datapaks the solid state storage media used by the system while the CM may only use up to 64K units

As before, these Datapaks which slide neatly into the right hand side of the main unit, are Eproms write once/read chips Secure and fast their only disadvantage is that deleted files are not removed from the chip only hidden

Datapaks can only be truly erased by exposure to UV light in a formatter (but this'll cost £45 if you want to buy one), or Psion, or the ubiquitous dealer, will do it for for £3 50 With room for two onboard, this gives the XP a maximum storage capacity of ½ Megadyte

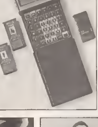
On powering up – power being provided by a 9V battery (lasting two to six months) or mains adaptor – your 2x18 character liquid crystal display bursts into life presenting you with menu offering all sorts of goodies

First the 'executive' functions Your Organiser will provide you with an electronic diary up to the year 1999 which will not only allow a short entry for every half hour, but will even link an alarm to any particular one There is a permanent real time clock with a linked alarm which can be read and used by the language functions and a 10 memory calculator

There is also a simple *Save* function, which will allow you to store any information in the form of a record up to 16 lines long and up to a total of 254 characters This may be saved to battery maintained Ram (ie, you won't automatically lose it when you switch off) or to Datapack.

The versatile *Find* command lets you search for a particular keyword or part of word – then comes up with the required record The main menu also contains an *Info* function, which will show the state of the various memories

So far so good – but this far what you have adds up to something that can be achieved with more ease and less fuss with pen and paper – and cheaper too What makes the Organiser II interesting is its sophisticated *Organiser Programming Language* (OPL for short) its ability to communicate with other devices via RS232 and the text it can gather data via Bar Code/Magnetic strip reader

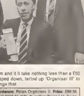


OPL deserves a full review of its own – the spec sheet alone would make the average hacker's mouth water OPL is a procedure-based language with constructs such as *If Else If Else Do Until* and *While* some familiar Basic type commands good error trapping, great file handling full scientific functions (accessable by the calculator function), and a lot more

Two software packages *Finance* and *Maths* (on Datapack) are already available – more are planned – and the *Concise Oxford Spelling Checker* is being billed as the first of a series of electronic reference books' (all £29 95)

Who is going to buy the Organiser II? As a remote data entry and retrieval device it's certainly going to do well in the business market But as a mass market everyday utility the humble jotter still has it beaten hands down and it'll take nothing less than a £50 stripped down, tarted up 'Organiser III' to change that





Above The finance pack. _Right_ The development team, (left to right) Andy Clegg, David Potter and Colly Myers.

> **Hardware** Psion Organiser II **Price** £99 95 (CM) £139 95 (XP) **Supplier** Psion Ltd Psion House Harcourt Street, London W1H 1DT Tel 01-723 9408

Software – the statistics

Amstat2 is, no surprises here the second in a series of low price statistical programs for Amstrad computers It is aimed at an untapped market of those people presumably mostly college students, who need to use statistical techniques for their work but who can't afford the hundreds of pounds asked for most stats software

To recap for those who missed the first review, *Amstat1* is designed to perform many simple tests such as simple ANOVA simple regression and summary stats (mean variance etc) and is an excellent buy for school level

Later *Amstat* programs will deal with advanced but specific applications – multiple regression, etc

Amstat2 is a collection of what are know as 'non-parametric tests The technical categories of these tests are one sample related two-sample tests independent two sample tests and k-sample tests with measures of correlation and they include such old hits as Binomial Chisquare Wilcoxon matched pairs Contingency, Spearman and Kendall ranked correlations etc

Partly because each *Amstat* release fits into a defined theme and also partly I suspect, to counter criticism' of *Amstat1* that there was no educational aspects – a level of knowledge was already assumed – *Amstat2* is very large and has been written to parallel a standard text on Nonparametrics to which you are often referred There is a small drawback in that the program now costs some £40 even without the text. With four programs supplied and twenty seven tests the value of the package is still tremendous, something like £1 50 a test but the overall price may put it out of reach of some people

However a CP/M conversion of the programs is promised (for the PCW mainly) and the company will be entering a world of more serious users and more hefty pricing so *Amstat2* may do well

There are no great differences in presentation to *Amstat1* beyond the provision of a patch for screen dumps and the ability to save the results to a word processor file

As a fan of cheap but useful software for the masses to match the cheap and useful hardware I highly recommend *Amstat*

Tony Kendle

Program *Amstat2* **Micro** Any Amstrad CPC **Price** £39 95 **Supplier** S C Coleman, 33 Leicester Road, Ashby-de-la-Zouch, Leics LE6 5DA

Disc support not slipping

Masterdisc is one of a series of disc utility programs that have been released for the CPC range Because it is only the latest it is not exactly original and many people will probably find that they have amassed similar routines from elsewhere Conversely, *Masterdisc* has the advantage of being able to improve on what has gone before and some of the utilities are excellently done

Among familiar options are very fast formatting (very useful for large batches) disc mapping sector and directory editing (essential for recovering deleted files – a facility that has saved my life before now) You can also format in IBM data format (normally CPCs can only read/write these discs) and *Masterdisc* supports five and a quarter inch second drives

Masterdisc also offers an intelligent disc copy option that will handle discs with damaged sectors or unusual formats One of its principal claims to usefulness must be the fact that it will allow you to backup PCW 8256 discs on a CPC and also Tatung Einstein discs for that matter

Until someone comes up with a software package that will allow you to format read write and copy PCW discs on a CPC this is a useful stopgap and with many other powerful features as well

Tony Kendle

Program *Masterdisc* **Micro** Amstrad CPC range **Price** £12 95 **Supplier** Siren Software, 76 Bridge St Manchester M3 2RT

Changed medium not bad

Supplied as a multi-purpose utility, *Ram Disc* incorporates a number of really useful facilities which, once loaded, remain as a job until the QL is reset.

Provided sufficient memory is available, any number of Ram files may be set up simply by typing *format RAMn_* and the number of sectors required The relevant drive (microdrive or disc) file is then copied into the Ram file from which it is loaded into the operating system using normal commands with Ram for the usual drive identification

Ram files may be configured to convert subsequent calls to microdrive or floppy from within a program to the relevant Ram files instead In use a Ram file is as simple as a drive access but substantially faster

Of course if a permanent copy of the Ram file is required this must be copied on to cartridge or disc prior to resetting the QL

Other utilities included in the program is a slick cartridge or floppy *Copy* routine where files may be copied or deleted either individually or as a group a printer spooler which will dump up to ten Ascii files to a printer – with an optional form feed between each file a verifier Status keyword utility and a superb screen dump

An outstanding buy I liked both the presentation and organisation of Ram Disc A genuinely useful program It is both user-friendly and idiot-proof Documentation regarding the various utilities is available as screen text

Ron Massey

Program *Ram Disc* **Price** £14 95 **Micro** QL **Supplier** D S Enterprises, 25 Trinity Rise, London SW2 2QP

Sign design's fine

Every time I begin to get the feeling that we've seen the full graphics potential of the QL, and have exhausted all of its possible specialisations, someone comes along with another program and proves me wrong *Sign Designer* is just such a package

Aimed at the user working primarily with text, numbers and other more specialised symbols, *Sign Designer* is a complete dedicated program system which can be used for producing any style of text and other visual presentation (including graphic illustrations) from simple letterheads to yards-long banners The possible variations are endless and sometimes surprising

Supplied on two microdrive cartridges, the first cartridge contains five complete letter fonts for use with the program cartridge other typefaces can be compiled and saved to either microdrive or disc

The second cartridge provides two facilities one for designing and producing custom font or symbol sets and the other for utilising the fonts The latter facility can produce graphic-generated text in any of four directions separated by 90°, and continuously variable size in terms of either height or width or both

A full range of colours and stipples are available in either mode 4 or mode 8 precise positioning and sizing of letter or blocks to text is aided by x-y co-ordinate indicators

In spite of being somewhat specialised this package is fun to use and represents good value for money

Justifiably described as user friendly first time users are nevertheless warned that they should practise with the system in order to obtain the results it is capable of producing

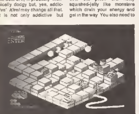
Ron Massey

Program *Sign Designer* **Price** £10 95 **Micro** QL **Supplier** D S Enterprises 25 Trinity Rise, London SW2 2QP

Tackling the blocks

The common opinion of Addictive s product (*Football Manager* being the bulk of it) is probably technically dodgy but, yes, addictive' *Kirel* may change all that. It is not only addictive but well blam is one word that springs to mind

That isn t all – lurking all over the place are nasty squished-jelly like monsters which drain your energy and get in the way You also need to



damn clever as well, featuring 3D graphics like *Knight Lore* but with an eclectic range of plot ideas mixed in from other games like *Q Bert*, to form an original and result

The game is about manipulating blocks, piling them up making bridges with them, removing them, sometimes blasting them away All this is to enable your little animated jelly-like hero to reach and stomp on bombs strategically placed around the screen Getting to the bombs involves reasoning which combinations of block manipulation are required to reach them – it requires thought (and quickly) Every screen is on a time limit indicated by a fuse burning away Take too long, and replenish bridge building block stores, energy and time, by collecting other objects Finally there are various kinds of transporter system to get you from place to place

Kirel is simply the most original game I've seen in ages, even though most of the individual ideas have been seen elsewhere Visually excellent and highly inventive with dozens of different screens I d say *Kirel* is a must.

Graham Taylor

Program *Kirel* **Type** Arcade **Machine** Spectrum **Price** £8 95 **Supplier** Addictive Games 10 Albert Road, Bournemouth Dorset BH1 1BZ

Knight of 1,000 guys

If you re into serious wargaming you re going to love *Knights of the Desert* If you're a closet Rambo forget it – this is strictly for armchair generals

The scene is the North Africa campaign Montgomery and Rommel, Panzers and Shermans ad the Desert Rats You can take on a friend in two-player mode or attempt to defeat the computer who takes the British forces while you don the mantle of Rommel commanding the German and Italian armour

The game is from Strategic Simulations Inc, via US Gold, and as is usual with SSI games strategy is all There are no graphics to depict combat – simply a few sound effects

The excitement comes from devising plans and executing them Your main concern is supply, and establishing a working and defensible supply line will be your first priority You can then look to push the Brits back into the Med

The screen displays although not animated are clear and colourful with small graphics depicting the various types of unit (mobile infantry tanks etc) As you might expect the fine points of the rules take some understanding and you should expect to play any games before you get to grips with things

Knights of the Desert is certainly not a game for anyone looking for quick thrills and fast action But for wargames enthusiasts who like a complex and detailed recreation of an historic conflict, it fits the bill nicely

Peter Warlock

Program *Knights of the Desert* **Price** £9 95 cassette £14 95 disc **Micro** Commodore **Supplier** US Gold/ Transatlantic Simulations Unit 10, Parkway Industrial Estate Heneage Street Birmingham

Football meets Hoover

Ballblazer is one of those Lucasfilm games originally created for the Atari and Commodore 64 – it has now been converted to the Spectrum

What distinguishes *Ballblazer* from other programs is really the originality of he gameplay and the split/ scrolling screens which show the action from simultaneously your own and your opponent s viewpoint

The game is a kind of hi-tech football, except that there are only two players and the goalposts move You control a rotofoil a hovercraft type device and must first capture and score a goal by blasting the ball between the other side s goalposts That s it, really – you can steal the ball by barging the opponent from one side or blast it away if you are afraid of losing it

It's fast and furious played out on a chequered grid which constantly scrolls to match your movements On the Commodore and Atari the game looked rather impressive as the enemy, animated to give the illusion of perspective comes once again for the ball.

The problem is on the Spectrum it just doesn't look as good For one thing the grid playing area is created by using light green and white – there is very little contrast and that spoils many of the scrolling effects The same is true of the actual rotofoils – they look rather indistinct and ordinary The sound impressively metallic and hi-tech on the Commodore, merely sounds like a very bad radio

Nevertheless it is worth taking a look at because the fundamental idea is strong and if you haven t seen the other versions perhaps you won t find it so visually disappointing

Graham Taylor

Program *Ballblazer* **Price** £7 99 **Micro** Spectrum **Supplier** Activision, Pond Street, Hampstead London NW3

The pleasures of terror

Christina Erskine single-mindedly grapples with the twin personalities at the heart of Terrors of Trantoss

The RamJam Corporation first caught attention last year with *Valkyrie 17* an adventure rich in plot and atmosphere Its latest offering is *Terrors of Trantoss* to be published by Ariolasoft and RamJam's ability to create a rattling good yarn has not diminished

The yarn it must be said does not at first sight seem to contain much in the way of originality All the traditional adventure ingredients are here dark personifications of evil set on world domination, deserted villages hidden keys and ogres in caves

The plot

Briefly it runs like this Trantoss is an evil xyradd embodiment of all things nasty, and banished long ago by Wizards of Vane, who shattered his golden mace source of all his demonic power Trantoss's deposed followers, undeterred, set about gathering together all the shards of the mace As the mace was reassembled so Trantoss s power was restored

You play two brothers Lobo and Scarn, who arrive home one day to find your family has vanished This being the last straw, you set off to Trantoss s mountain hide-out to destroy the restored mace and render Trantoss forever powerless

Playability

You control Lobo and Scarn as though they were detachable Siamese twins Lobo is heavy and chunky Scarn thin and weedy so you need to interchange between one or the other to do certain tasks Not difficult - you can become either one of the pair by entering *Swap* as a move Normally they/you both stick together like glue but you can esparate them and put them in different locations by typing *Part*

An attractive aspect is that you are always given a choice between death and reincarnation so you can work your way through the entire adventure however many fatal mistakes you make Reincarnation loses you points though so if you really blunder your way through, crashing from one resurrection to the next, you may find you destroy Trantoss with a score of zero

One of the enduring puzzles of the game which you re likely to come up against early on is the clutches of runes written on staffs and gates around the place These runes need translating if you re going to get anywhere This is best done by finding the location which will do all the translation work for you, but it is also possible to decipher them by simply regarding the runes as a symbol/letter substitution code



Tips on playing

● If you re told you can t carry any more remember you are actually two people and get your alter ego to carry the rest

● The temple is one of the key locations You need to catch the dog which is where both your personae are needed Get Lobo outside the temple with the sack As Scarn go back into the temple and chase the dog The dog should run out, whereupon Lobo nets it in the sack

● At this point you should have found a key which will open a door at the back of the temple to reveal yet more runes This is where you can get them translated

● At the gates of Ganneth a simple command contained within the rune on the gate will open them

● Close the gates of Ganneth behind you, or the fang lizard will stand in your way

● Another command found in a rune (on the staff) will make the staff glow This has its use later in the game when you come across a box with a hole in it

● You can go down the well in the deserted village but it needs careful negotiation Something needs to be thrown down the well – remember who s the stronger person If both of you go down the well as one person your weight will be too much

● If you find a mace fairly early on, don t congratulate yourself There are two maces and one of them is an illusion

***Terrors of Trantoss* is to be released at the beginning of June for the Spectrum, at £7 95 Further details from Ariolasoft, Long Acre, London WC2 (01-836 3411)**



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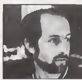
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HIGH PERFORMANCE PROGRAMS



Seeking help with Se-Kaa

This week Tony Bridge has some useful tips on Se-Kaa of Assiah from Mastertronic and the Hobbit appears once more . . .

One of the first budget adventures released by Mastertronic was *Se-Kaa of Assiah* by Clive Wilson and Les Hogarth a graphic adventure with text input The game follows the usual Dark Hordes against the Wise Ones scenario in which you the leading actor have to discover the whereabouts of the three great Artefacts and once this Quest is accomplished, to escape from the Dread Castle

I thought that it was an enjoyable romp with some interesting problems and colourful action However the arcade action was a little basic for some reviewers and the game has unfortunately fallen by the wayside which is a great pity

But people still write to me with tips and problems on the game – like James Scott, who gave me several tips while being stuck in a problem with The Guardian He tells me (and many of his comments are backed up by the indefatigable adventurer, John Wilson of Rochdale) that 'to get out to the Island via the exits of the Castle type Slide Door To get the Rod from the block of ice Open Red Valve – while wearing the cloak and carrying only the Torch – now light gas (I have to admit that I couldn't do this!) Open Green Valve and wait for the ice to melt To get the hammer of Vib Ra cut the wire holding the Sack

Cloak and staff

It's important, while you're mapping the adventure to Search Room at every location, as things will be revealed that are otherwise not mentioned To get past the Guardian James push the stud at the end of the Staff then throw the staff at the Guardian To unblock the obstruction near the gate requires a complicated sequence of filling the sack (containing the Hammer) with sand from the floor, tieing the sack to the lever and then slitting the bottom of the sack

At the start just move east and west of the village and wait for the villagers to shower you with the gifts of the Cloak and Staff wander around for a couple more moves and Beerd the Messenger of the Wise Ones will appear to tell you of your mission and to inform you that he has taken care of the castle doors allowing you free entry

Souls of the dead

Despite the slowness of processing and the rather blocky graphics I enjoy playing *Se-Kaa* it's not too difficult and I like the way that you're hurried on by the approaching steps of the Souls of the Dead Although the problems are really not too hard there are two parts to the adventure and if you find it in a bargain bin somewhere get to it before someone else does Incidentally if you find that you've made a silly mistake and wandered off the path just press Break and you'll find yourself resurrected – if you don't way out of this one! James address should you want to help him further is Trenchard House Queen Victoria School, Dunblane Perthshire FK15 0JY

The Purple Paw wrote to me this week from his lair at 4 Orodruin Road Barad-dur on the Plain of Gorgoroth taking me to task 'I own an Amstrad CPC 464 and recently bought *The Hobbit* from The Home Computer Club for the wonderful price of about £3.00 I'm writing this letter for several reasons The first to thoroughly recommend the aforementioned club And second – I feel that there may be many new players like myself who have never attempted the game, and on this assumption I can't understand why you never mentioned *The Hobbit* or give any (much needed!) clues For example the Goblin's Dungeon problem is often mentioned in articles like yours in such terms as You've never lived until you've solved it! but the majority of players like myself would dearly love the odd hint. So try to write about it a bit eh?

The bugs in the program are even more worthy of mention In the instructions it talks of a command Print which is meant to send all screen output to the printer but this freezes the computer

I haven't seen the Amstrad version of *The Hobbit* Purple so I don't know what special bugs are present but Hobbitbug spotting has been a favourite pastime for Spectrum Commodore and BBC owners for several years now And this leads me onto your comments about mentions in the Corner about *The Hobbit* As you say that I have never mentioned it I assume that you have not been a devoted reader of the Corner for the past three years It's a pity that you haven't noticed the 346 mentions of the game during that time including the long-running Hobbit Hall of Fame and the half dozen detailed breakdowns of the Dungeon problem (and I don't know what others have said)

Thief with friends

If you ask for help at this location you'll be told that a window should be no obstacle to a thief with friends Bilbo is sometimes called (unjustly) a thief by other characters so wait around for someone to turn up then ask them to open the window Then ask them to carry you then Go Window or simply West Don't forget to get the Key from beneath the sand (always Dig when you see sand mentioned in an adventure)

There you've made me do it, haven't you? Many months ago, I promised that I would never mention this problem again as it had already been thoroughly covered in most publications *The Hobbit* is undoubtedly a classic in the adventure field but new programs come along all the time all of which demand their own exposure while I will continue to mention it from time to time I believe that The Corner has done its best for *The Hobbit* But enjoy the game Purple It is certainly worth attention

Adventure Helpline

Going bananas? If you are stuck in an Adventure with nowhere to turn do not despair – help is at hand

Fill in the coupon explaining your problem send it to us and a fellow adventurer may be able to help

Remember – the system only works if those adventurers who have solved the puzzles get in touch Every week is Save An Adventurer Today (SAAT) week!

Adventure .... on (Micro) ....
Problem ....
....
Name ....
Address ....
....



ADVENTURE HELPLINE

Quest for the Holy Grail on the C64 I can get past the Knight who says Nik in one direction but when I come back he says Nik and I turn into a pile of bathsalts What do I do? Anthony Garrett 81 The Woodlands Melbourne Derbyshire

The Fourth Protocol on C64 How do I get out of the Barbican centre with the flowers for Blodwyn? Miss J Pickard 6 Snowdon Avenue Connahs Quay, Deeside Clwyd CH5 4TX, N Wales

Infidel on C64 How do you find Pyramid? D Green 3 Nightingale Place Bilston West Midlands

Warlord on Amstrad How can I obtain the druids amulet, what can I do in Fomorians Cavern how to get rid of whispering Demons? Rik Demayer, Wolstraat 12, 9000 Gent Belgium

Snowball on BBC Lamp Working but how do I survive outside, how do I repair droig? Pete Lord, 6 Wellswood Gardens Exeter, Devon

Forest at Worlds End on Spectrum How do I Kill the Elves at the beginning (I have Bow and arrows) Vincent Lansdowne 78 Hadrian Road Fenham Newcastle upon Tyne NE4 9OL.

Denis through the Drinking Glass on Spectrum How do I find first drink? David Charter 4 West Rocke Avenue, W O T Bristol BS9 2AW

Mordons Quest on Spectrum What's the answer to Tarzans riddle where is Irong how do you south from landing? Paul Thompson 23A Rowan Drive Newbury Berks RG13 1LY

Heroes of Karn on C64 How do I kill pirate cross chasm pass serpent get wand find mirror open clam? T P Hayes Airwork Ltd PO Box 1223 Seeb Airport, Sultanate of Oman

Bored of the Rings on Spectrum Cannot get map from pixie or use vendingma machine Eric Quiney 97 Llwynon Road Llandudno Gwynedd N Wales LL30 RQE

Hobbit on Spectrum Got Ring, cannot get out of caverns keep getting caught by goblins Martin Loker 54 Salisbury Avenue Westcliff on Sea, Essex SS0 7AX

Gremlins on Spectrum I have disabled the plough I'm stuck on the rest. Ryan McCormack 45 Northwood Avenue Elm Park Essex RM12 4PU

T K V on Spectrum How do I Kill the Dragon? P C Collinson address as above

Hacker on Spectrum How do I talk to the spies and what is the companies name? Dave Edwards 46 Riverdale Court, Higher Blackley Manchester M9 3HW

Black Sanctum on BBC How do I built to alter? As above

Mission Impossible on Vic20 How do I get into the control room? James Howard 7 Buckfast Square Corby Northants NN18 8DT

Fourth Protocol on Spectrum What words will medical security understand to deal with Thorn? I Souter 55 Somerset Avenue Westcliff on Sea Essex SS0 0ON

Red Moon on Amstrad Found 20+ objects can cast a few spells but what for? Can anyone help before level 9 clue sheets come out? Hetasha Silva, 6 Goldhanger Close Rayleigh Essex SS6 9RX

System 1500 on C64 Any help at all wanted codes and Tel nos? 20 Castle Walk Hyson Green Nottingham NG7 6DZ

Gremlins on Spectrum Can I get computer to understand how to put Gremlin in blender or help even Ross Hutchin Criegs Saltys Den Innes, 6 Soothouse Avenue Edinburgh EH17

Classic Adventure on C16 How do you get past the snake in the hall of kings? G Dale 99 Coldstream Crescent, Wishaw ML2 9OJ

Hacker on Spectrum Any information at all on this program Mrs S Haviland 12 Fludyer Street, Lewisham SE13 5RZ



EDUCATIONAL SOFTWARE



INSIDE

With the demise of the Microcomputers in Education Project (MEP) so beloved of Micro Live the prospects for educational software look bleak. The local education authorities will have money to spend on software certainly – by one estimate the equivalent of six pencils worth for each pupil per year

Now more than ever the edsoft houses are relying on concerned parents and groups such as Parent-Teacher Associations to spread the word about educational programs. Though the field is still dominated by the BBC machines, all home micro owners should be able to find good products for their machines.

Despite the arguments of some houses about low production costs and short development time, there's no excuse for low quality software – great graphics may not be compulsory, but a boring program will almost certainly teach you nothing. ◄

MIRROR ON THE BALL?

JOHN MINSON TALKS TO PAT BITTON OF LEADING EDSOFT PRODUCERS MIRRORSOFT

Though probably best known today for successful arcade hits like **Dynamite Dan** and the soon to be released **Biggles** Mirrorsoft has been involved in the educational market since the earliest days. They've remained faithful to the area, gathering good reviews, though not always commercial success With this in mind I visited the software arm of Robert Maxwell's empire to ask Pat Bitton about the trials, tribulations and occasional rewards of publishing educational software and we started with a brief history of the company

First steps

'Two of the first three titles that Mirrorsoft published in October 1983 were, in fact educational titles. These were **First Steps With the Mr Men** and **Quick Thinking! First Steps** has gone on to be a tremendous success in its little niche in the market having sold 30 000 copies since it was published.

What had led to that initial decision to get involved in an unglamorous field often criticized for poor quality programming?

It should be seen in the context in which Mirrorsoft first started, which was not as a company per se but as a development project within Mirror Group Newspapers. At least one of the people involved in that original project had small children and was looking for software for those children

Reaction to those first programs was very good indeed "It appeared that we'd found a gap in the market that nobody else had really tried to fill"

Since them Mirrorsoft has acted as a publisher for several programming companies among them **Chalksoft**, **Widgit** and **H & H Software** "There never has been any in house writing I was told.

Instead Mirrorsoft works closely with software developers which are either part time involved with education themselves, or work closely with teachers They are aware of the constantly changing requirements of the market." Programs are then fully tested. By both urban and rural schools – because the requirements are different in different situations – and by families with children

There are now approximately 15 educational titles in the catalogue. "All of which remain active, really The backlist carries on selling"

Despite limited involvement with the general educational adult market, including the successful *Star Seeker* astronomy program, Mirrorsoft products are primarily

aimed at the younger age group – the below eight year old level – which have given Mirrorsoft the greatest success "At the time we started the Mr Men were probably the most universally popular characters among small children They were easy to implement on the computer as their shapes were well defined and it seemed an obvious choice "

This need for a fun factor doesn't seem to be recognised by some educational publishers while others make half-hearted attempts of the mathematical **Space Invaders** variety but, I suggested it was obviously important for Mirrorsoft to do it and get it right.

"This again should be seen in the context of just having developed for the home market rather than the classroom Children don't want to come away from a formal learning environment like a school and then be put into another semi-formal environment at home It has to be at least as much fun as anything else they might want to do at home ' And presumably also fun for the parents who are going to have to play them with the child "Absolutely And very very easy for the parents and children to use because the average mother does not have time to sit for two hours with the child at the computer Children should never, ever be forced to do anything. It's another form of play "

In this respect Mirrorsoft have made efforts always to use key cards or overlays in one form or another

With characters other than the Mr Men Mirrorsoft have been less successful **Caesar the Cat** had been the hero of the arcade game that completed the first three releases but **Caesar's Travels** an attempt to create an interactive multiple option story book around the character failed "Although it's been widely praised by everyone who's seen it and played it It's not been then commercial success that the Mr Men products have, unfortunately"

The same lack of acceptance met the excellent **Phineas Frogg** a beginners level adventure with arcade sequences that taught the user to think problems out logically and to make maps in a most entertaining and stylish fashion Pat Bitton recognises the problem in constantly relying on the Mr Men's universal recognition

"The retail trade recognises them as being potentially profitable because they can identify with them We did attempt to set up our own licensing and merchandising with **Caesar the Cat** which trickled along for a while but never got going in a major way because we didn t have the resources to become a licensing company"

More recently **Crack-It Towers** and **The Giddy Game Show** have used existing titles to provide the basis for educational content but sales have been somewhat disappointing

"The retailer doesn t feel that the product s profile is high enough It s already difficult enough to convince the average retailer to stock children's or early learning software without trying to convince them of the marketability of a product as well."

Despite their emphasis on good packaging including colourful and comprehensive booklets and comprehensive information support leaflets, the inbuilt resistance to educational software remains

"It s not as easy to sell as games either for the wholesaler or retailer There has to be more depth of product knowledge The wholesaler can t just ring round to the retailer saying Hey, I've got this great new game' He's got to say, I've got this educational software program which does x, y and z ' They re not fast moving products – they never will be – but they re steady sellers as we ve found from our own mail order sales "



Children's software the area that encompasses programs that are not overtly educational, such as **Phineas Frogg** is even more hazardous, partially because of the reluctance of bookstores – the natural place to reach the junior end of the market, or at least the purchasing parents – to take software.

But all is not gloom There are considerable sales to schools, despite the home target market, because the wider marketing means that they have to keep costs down compared with most specialist classroom software. Mail-order is another important factor accounting for half of **First Steps With the Mr Men**'s 30 000

"Most of the other titles have not done a significant amount when related to **First Steps** Between three and five thousand would be a good seller out of the other titles – and some of the more recent ones that we expected more of have sold no more than two thousand

New hope will soon appears in the shape of a promotion in Boots, arranged by BESA the educational software publishers association "Boots is the obvious place given that Mothercare and Early Learning Centres don t yet stock software But I would like shops to offer a special order service and hold information on the counter, like the BESA catalogue so the basic information is at least there for the customer"

Interestingly this is an area where BBC micros still have predominance though this may create another problem with retailers as hardware sales fall AS these machines were sold with heavy emphasis on their educational function I suggested that there should be no wariness amongst parents to use them as an educational tool but Pat Bitton suggested that many had been disappointed by their earliest encounters with quote – educational software"" standards

Despite all these hazards, Mirrorsoft still feel they have a role to play "Our experiences over the last year or so have really led us to the conclusion that it is essential to get into character licensing – to move educational software to the home market. It s unfortunate because it's an expensive way to go about producing this software and it does sometimes put the price beyond the reach of those parents who are buying it. But our policy is likely to be in the future that we will do one or two major titles and leave it at that It s a heavy programming effort for educational software for at the moment not a great deal in return of sales – although we know the market is still there It s a frustrating area to be in" ◄

AFTER SCHOOL

YOU SHOULDN'T HAVE TO STOP LEARNING JUST BECAUSE YOU ARE TOO OLD FOR SCHOOL PAUL ŠVYCARSKY LOOKS AT COLLINS' ADULT TITLES

Defining an adult education program is less easy than one would imagine. A number of topics, such as music or languages, reviewed elsewhere in this supplement are suited to any age group. There is also the question of quite where the boundaries of 'educational' should be drawn. All in all, it's a tricky business.

Eighteen months ago 'educational' was much more prevalent as a buzz word among software producers than it is today. There were several companies releasing programs with serious intentions aimed at the post-teenage micro user. There were even rumours of a computerised version of The Joy of Sex though this never appeared – for which perhaps we should be thankful. Since then the number of adult educational programs has declined dramatically. However Collins continue to publish the Brainpower series which first appeared two years ago and gathered some good reviews. Here we look at three programs from that series plus another of their adult offerings and consider whether they are still so impressive in the light of current developments.

Constellations

Star Watcher was among the first releases and is an astronomy tutor and planetarium. Obviously such a program is hardly limited to adult users though as it calls for a more serious study of the heavens than watching for the next wave of Thargoids, we will include it here.

In common with most of those early Brainpower programs, Star Watcher comes complete with a spiral bound manual that will stand in the video case for easy reference when used next to your monitor. More recent releases don't include this feature, which is a pity.

The book provides the first couple of lessons in astronomy, on calculating the positions of stars and how they are named. Then it's time to load the tutorial side of the tape and indulge in some star recognition exercises. The constellations, divided for the learning process into three groups, are presented to you as seen from your latitude and after reviewing them there are tests to check you know your Orion from your Auriga.

After that use the applications program to set up star charts for different dates and locations, either to prepare yourself for a night of star gazing or to see the heavens as you never could from your home town. This obviously extends the life of the program way beyond it's educational beginnings.

Astronomy is an area where there never seems to be a shortage of programs and this one, though well presented and competently implemented, is beginning to show its age and appears a trifle expensive in the light of more recent competitors that include phenomena such as Halley's Comet (not surprisingly there's been a spate of these recently).

Time Manager is more of an aid to organised living than a truly educational program, though it could be argued that learning how to allocate time efficiently is the greatest lesson that you can have.

The package contains a utility for the creation of databases dedicated to arranging your affairs within the 365 days of a year. An accompanying booklet contains not only instructions on how to operate the program to create an 'electronic diary' closest to your needs, but also an essay on why it is so important to be organised an how to achieve this state. As the instructions do not presuppose any prior knowledge of database jargon it is also something of an education in the meaning of fields, et al.

Four main types of entry can be created for each day under six different titles. There are provisions for text, integer numbers, money with two decimal places and simple yes/no binary decisions. each entry can be given a level of priority so that the presence of a business appointment in a text field would overrule another test entry for the Cup Final (if you have such warped priorities).

Providing you pay careful attention to the booklet and follow the examples it shouldn't prove too difficult to set up a proper regime and who knows, if you take its lesson to heart you may even have more time to devote to self improvement.

The Real You? is not part of the Brainpower series. Its been said that to know anything you should first know yourself. But before you get too excited at the thought of revealing the real you, look again at that title. The question mark is there for a reason.

This is very much the equivalent of those tests that lurk in the pages of Reader's

Digest. For the most part they seem to be based on statistics, so that the compatibility test will measure your responses to a questionnaire and compare them with those of an unnamed cross section of the (American) public. There are one or two exceptions to this system of measuring, such as the IQ test or stress factor measure.

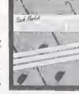
Bullish

Given then that the package should be treated light-heartedly, you might buy it for a little fun. Wrong! The whole exercise is so badly programmed that you're unlikely to persevere long enough even to find out whether you're a true snob or not. As if the slow response times weren't injury enough the programmers have added insult by letting you break straight into the Basic.

The most disheartening thing is that this is a recent release. There is no excuse for releasing such an amateurish effort in this day and age.

The **Stock Market Speculator** fares rather better though it is still incredibly slow at times. It is an introduction to the arcane world of bulls and bears, and is once again accompanied by a manual divided between instructions on using the program and an essay on just what all those figures mean.

Once you think you have an understanding of the terms involved it's time to invest the money that the program places at your disposal – and there are



various amounts for the type of investor you want to be, from a mere Dabbler with an inheritance to Fund Manager with five million!

The program is run by menus and it all goes fairly smoothly, though on the Spectrum version it wasn't always clear how you get out of all the charts. As you'd expect in a simulation of this type there are lots of figures to assimilate, but to stop it becoming a mere exercise in spotting statistical trends there are two indications of an outside world. The news reports tell of company business or world events, such as rumours of an OPEC rift, while your broker will have inside information on trading success and failure: it's up to you to react to these tips.

Used over a period of time I have no doubt that **Stock Market Speculator** would give you a greater understanding of the machinations of those pin-striped city types even if it wouldn't guarantee you a fortune overnight. However it seems a pity that the booklet puts such emphasis on the speed of dealings on the floor when the creation of screens and time spent thinking are so tediously slow. I was also unamused by the fact that when I was found to be buying shares without the necessary capital the program dumped me unceremoniously back to Basic. I suppose it was somebody's idea of teaching me a lesson in honesty. If only the real business world was so unforgiving!

Serious

I find it depressing that even in such a short survey we have uncovered one abominable program and one that should be far faster in its responses. The best of the four is undoubtedly the oldest, which suggests to me that there is a lack of serious effort being put into developing serious programs for the older user. And that leaves the home micro more than ever the domain of the alien blaster! ◄

LANGUAGE BARRIER

DO YOU FIND FOREIGN LANGUAGES IMPOSSIBLE TO MASTER? JAMES DELROY REVIEWS SOME VALUABLE AIDS

Granville, The Prize Holiday Package, is something of an exception among edsoft programs in that it comes with a wealth of documentary literature in the form of a 50-page illustrated booklet.

Granville is a French seaside resort, and the program – designed for fourth and fifth year students – challenges you to plan a whole range of entertainment and holiday activities with a restricted money and time budget.

At once an adventure game, with random occurences affecting the outcome, and a language course, Granville also involves sub-games including a visit to the casino – so there should be something here to entertain every computer owner. The five-day holiday opens when you arrive at your hotel and enter your name in the register. You are then given a "room number" which ingeniously also acts as a file number so that you can re-enter the program again and retain the same details.

The graphics then illustrate your "state of affairs" – your level of money, hunger, thirst, time of day and so on. You should then consult the "daily paper" to find out what events may take your fancy during the first day of your stay. All option choices are made using the cursor and return keys, so it's very quick and easy.

Up to this point your knowledge of French has not been severely tested, but your chance to show off comes when you visit the local shops and have to tell the shopkeeper that you want to buy "des chausettes" or whatever. Here the program will try to guess what you mean if you make simple spelling errors. You can add various types of accents using the function keys.

Warning messages flash up if you become dangerously low on food or money, and it is up to you to rectify the problem by finding something to eat (and if necessary changing Sterling, or winning money at the casino or the fair to pay for it). The booklet is full of interesting local details – maps, guide books, posters, and so on – and has a word list at the back.

Overall the package is one of the most interesting language programs around – not much good for hard core vocabulary or grammar revision, but great for stimulating a general interest in using the French language. My only reservation is that I doubt whether Granville would function as well in a group learning situation as it would for individual use.

Other programs in the series include French Connections, a vocabulary and geography revision aid, Quelle Tete, Jeu de Menages, two vocabulary building games, and Kopfjager/Umziehen, a German equivalent with similar furniture arranging and face drawing exercises. ◄

Program: Granville – The Prize Holiday Package
Micro: BBC B
Supplier: Cambridge Micro Software
Price: £24.95 + VAT

School Software remains one of the most prolific producers of edsoft packages despite being situated in Ireland and suffering some lack of exposure. Covering a wide range of machines including CBM 64, Amstrad and BBC B, the company also has an unusually wide range of titles, including programs for the very young.

Apart from their Maths, Physics, Biology, Chemistry, Geography and music programs School Software produces a large range of language titles.

Aside from a French title which consists of a vocabulary builder, using several hundred words grouped in families, there are also two Irish titles – Better Irish 1 and 2. Aimed at the 10-14 age group the first package deals with basic grammatical

requirements concentrating on the use of the present tense. The second also covers the past and future tense.

The programs are available on CBM 64 cassette or disk, BBC B cassette or disk, and Amstrad cassette, at £9.95 cassette and £12.95 disk. There's also a five-pack 'Junior Software Library Set' including Maths 1, Spelling, Irish 1 & 2 and French ◄

Program: Better Learning series
Micro: BBC B, Amstrad, CBM 64
Supplier: School Software
Price: £9.95, £12.95

Possibly the best-known language packages around are those from Kosmos, in the Modern Language Learning Aids series.

Each of the packages – **The French Mistress, The German Master** and **The Spanish Tutor** – follows the same format. Designed for CSE/O level, the programs include a large vocabulary list arranged in sections by subject. In each case the "control program" is the same, with the pace being set by the pupil. All the necessary accents are provided for, and colour-coded displays assist learning genders.

Interestingly, it's also possible to create and edit your own learning files using simple commands. This is particularly useful if you are deficient in a certain area, and do not want to have to work through a whole program just to revise that one part.

There are two packs in each series; on the first packs, subjects covered include food, clothes, the family, weather, shops and so on, while the second packs cover more esoteric subjects such as conjunctions, prepositions, adjectives, adverbs and the like.

There are disk versions available which include both pack A and pack B from each language, but at £19.95 per disk it doesn't seem much of a bargain.

The Kosmos series serves very well as a straightforward vocabulary tester – but in failing to use any aspect of the computer's real power, it limits itself to the sort of thing which could well be done with a notebook and pencil ◄

Program: Modern Language Learning Aids
Micro: BBC B, Electron, Spectrum, CBM 64, Amstrad CPC
Supplier: Kosmos Software
Price: Cassette £8.95, disk £9.95 BBC, £12.95 Amstrad

Deutsch Direkt! is described as a vocabulary builder, and as such is of little use to any German beginners who have no knowledge of the structure and grammar of the language. (It would be like giving a German an English dictionary and expecting him to be able to speak English.) That apart, the program does its job well if you need help with vocabulary alone.

The package consists of an audio pronounciation tape, a 24-page user guide and software on 40-track disk. It's possible to transfer the program to 80-track disk, or for use on Econet systems, if this is required.

The program's "dictionary" contains over 1000 words on a variety of topics. All the words are reproduced on the audio pronounciation tape – what a pity that home computers aren't yet at the stage where they can talk you through the words themselves!

The disk contains six teaching programs selected from the main menu. Some of these are very valuable and enjoyable, others seem a waste of time.

In all cases, selections from menus are made with the cursor keys, and choices entered with RETURN. The first exercise, WORDS, introduces the vocabulary in blocks of fifteen words at a time. You may choose any block to start with, from 1 to 69.

The words from the block you have chosen appear one by one against varying colour backgrounds, according to whether they are masculine, feminine or neuter, singular or plural. In the first exercise you simply type in the words as shown, making sure to use a capital letter at the start of a noun (the program is very fussy about this). The umlaut and German double s are represented by and $ signs.

The second exercise consists of typing in the same words with the appropriate definite article. You can then link the words with appropriate adjectives (the translations are available if required). You should listen to the audio tape track while working through this exercise.

The second main section, REVIEW, allows you to check through each word in a block and re-test yourself on any of which you are unsure.

A more interesting exercise in SQUARE, in which a grid of letters is printed on the screen. You use the cursor to find the start of a hidden word, then trace the word out to remove it from the list. If you get stuck you can press H for help.

LINKS tests you on relationships between words. Your task is to take a start and end word and construct a pseudo-sentence which links them together. Again, there's a help facility if you get hopelessly lost.

The last section is TOPICS, which tests you on vocabulary from a certain subject (such as Music or Work) rather than from vocabulary blocks.

Overall Deutsch Direkt is a good package if you accept its limitations ◄

Program: Deutsch Direkt!
Micro: BBC B/B+
Supplier: BBC
Price: £22.95

A Vous La France! is a more wide-ranging course, with a series of exercises based around everyday situations, including shopping, map-reading, games, and so on. The course consists of 45 exercises stored on two cassettes, the contents of which can be transferred to disk.

The exercises are very varied, and present a better selection of learning experiences than the Deutsch Direkt program. The first, for instance, is in the form of a list of food and drink and a list of different kinds of shop. You have to match the items to the correct shops, scoring ten for a correct guess and losing ten for a mistake. You can also 'pass' if you're unsure.

The second exercise, Scramble, gives you a series of sentences which are arranged in the wrong order. You can rearrange them in any order you require, then press Return to discover whether your sentence makes any sense.

Article, the third exercise, allows you to test your knowledge of when to use UN and UNE. It has always baffled me that the French regard railway stations as being feminine and wardrobes as masculine – or is it the other way around? – so this is a helpful exercise. You must type in the correct article into an incomplete sentence.

The next exercise, Where, tests you on directions – left, right, over there, third left after the traffic lights and so on. One of the more graphical of the exercises, it involves directing a spurious French person to a point marked on a map. There are follow up exercises in which you must quiz people as to their place of birth, and ask for directions in a new town.

The rest of the exercises fall into roughly the same pattern: building vocabulary, sentence structure and colloquial use, always in the context of real situations. There are, for instance, sections on counting, quantities, matching the gender of nouns and adjectives, telling the time, using public transport, food, using the phone, navigating, and so on.

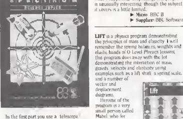
Overall, the program is certainly more ambitious and testing than Deutsche Direkt, using a limited amount of graphics but maintaining interest by devising interesting exercises rather than just testing vocabulary. The package comes complete with a keyboard overlay which indicates which function keys to use for the accented letters, and despite the disadvantages of the tape format it's all very straightforward and enjoyable, pitched at the right level between education and entertainment. ◄

Program: A Vous La France!
Micro: BBC B, B+
Supplier: BBC
Price: £19.95

TALKING TECHNICALLY

HI-TECH SUBJECTS ARE PERHAPS BEST SUITED TO COMPUTER – ASSISTED LEARNING GODFREY DUFF LOOKS AT THE SCIENCE SOFTWARE SCENE

ELECTROMAGNETIC SPECTRUM is in three parts each in the form of an adventure game with options selected from a menu Designed to test your knowledge of waveforms from gamma through visible light to radio waves, the program takes the form of a quest for a mysterious rock, somewhere in space which then has to be returned to earth and analysed.



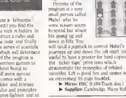
In the first part you use a telescope typing in co-ordinates until you find the star system in which the rock is hidden In part two you must construct a radio and send a message in morse code and finally analyse the rock using a series of scientific instruments and tests which will determine its nature The format of the program is familiar enough the adventure gamers to add to the interest without being so complicated as to put off more serious students The program comes with a usefully illustrated booklet and stresses understanding of formulae and principles rather than learning parrot fashion and as such is to be recommended

► **Micro:** BBC B
► **Supplier:** BBC Software

ELECTRONICS IN ACTION covers the subject of computer control of outside hardware Three control system simulations are included a robot arm a kettle, and a water tank. The software is fully interactive, so that you can modify the 6502 assembly language subset used in the control programs and test out your own ideas Each control system is illustrated with a graphic which responds appropriately as you modify the control parameters. For those of you who are not conversant with 6502 (myself included) the program also displays explanations in English of exactly what's happening Graphically, this program is unusually interesting though the subject it covers is a little limited.

► **Micro** BBC B
► **Supplier:** BBC Software

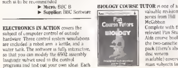
LIFT is a physics program demonstrating the principles of mass and elasticity I well remember the spring balances, weights and elastic bands of O Level Physics lessons, this program does away with the lot demonstrating the interaction of mass, gravity velocity and elasticity using examples such as a lift shaft a spring scale, and a number of vector and displacement diagrams.



Heroine of the program is a very small person called Mabel who for some reason seems to spend her whole life going up and down in lifts You will need a joystick to control Mabel's journeys up and down the lift shaft and it's useful to have a printer for hard copies of the "ticker tape" print outs which demonstrate the principles of related variables Lift is good fun and comes with an interesting 46 page booklet.

► **Micro:** BBC B (80-Track disc)
► **Supplier:** Cambridge Micro Software

BIOLOGY COURSE TUTOR is one of a valuable revision series from Hill McGibbon Complete with the relevant Pan Study Aids course book, the two-cassette pack (there's also a disc version available) covers five main subjects to O Level standard The Cell Nutrition and Respiration, Genetics and Ecology Movement and Co-ordination and Reproduction, Excretion and Temperature Regulation are the five main areas, and each has a "computer marked" diagnostic test to pinpoint your areas of weakness.



The multiple-choice format of the revision modules is certainly well-suited to use with a computer but the resulting graphics are hardly inspiring all you get on the screen is a series of question numbers, which you must respond to by entering the correct option from the course book. In effect all you are getting in the way of software is a list of the correct answers which are given in the book anyway Hardly pushing the computer to the limits of its abilities, especially since the book contains lots of pretty diagrams of body parts which would look great in hi-res colour Not an exciting series of program but a valuable one if you can't find a partner to help you work through these basic revision exercises.

► **Micro:** CBM64
► **Supplier:** Hill-MacGibbon

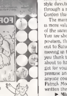
THE MOLE CONCEPT is not thankfully an academic dissertation on the life and art of Sue Townsend In fact it has no connection at all with the spotty schoolboy Adrian since the moles of the title are chemical rather than fictional A mole as any fule kno (go it, Molesworth, show them wot yore made of) is a measure of quantity dependent on the number of particles making up a single molecule of a compound. It's a difficult concept to get to



grips with, but the colourful graphics and straightforward explanations of this package make it all simpler

The great gimmick of The Mole Concept is that it is one of the few successful interactive audio tapes Used in conjunction with an audio commentary by unctuous Fred Harris, the program combines explanation with demonstration Although the tone of the commentary is meant to be light-hearted it does sometimes spill over into the realms of the feeble minded with jokes about garden pests. There are some great graphics demos – cakes rising, liquids running out of burettes, molecules combining – and the whole thing is very polished Recommended if you have any difficulty in getting to grips with the more esoteric aspects of chemistry

▶ **Micro** BBC B
▶ **Supplier:** BBC Software



FORENSIC stays with the theme of chemistry presenting you with a murder mystery which has to be solved using your knowledge of practical chemistry

You are given a list of suspects and the alibis they have offered Oddly enough all of them revolve around using a particular chemical which you can test for using a number of options such as chromatography flame tests, acid tests, adding barium chloride and so on Each test of the suspects alibis is animated very nicely, with the flame tests for instance showing different colours, the chromatogrphy (filter paper) test giving different tint patterns, and so on

Once you have done enough tests to establish which of the suspects is lying, you can go to the report screen – having made your notes on a sheet provided with the scanty documentation – and find out whether you have identified the killer by a process of elimination It's all jolly good fun and has plenty of help pages which explain the chemical tests, the principles of forensic science and the methods of investigation by which you can solve the mystery Unusually good and well up to the standards set by one of the most prolific edsoft houses, Chalksoft

▶ **Micro:** BBC B
▶ **Supplier:** Chalksoft

SPACE TRACK is described as a "NASA-style" computer simulation of a space mission



Considering their current record of blunders and blow ups this may not sound like much of a recommendation, but I suppose you have to take the rough with the smooth Unfortunately, the program seems to sacrifice any aspect of reality while claiming to consist of "practical simulations" The second exercise consists of typing in LOGO-style direction instruction to guide a rocket through a meteor storm It's more Flash Gordon than James Burke

The main part of the program, however, is more valuable consisting of a simulation of the inner planets of the Solar System You are shown the Sun in a central position, then the courses of the planets out to Saturn are plotted and they are seen moving in their orbits. However, just when you think that something interesting is about to happen, you realise that is all you get for your money Space Track is all promise and no delivery – I didn't see how anyone could learn anything from it, and Patrick Moore should be ashamed of having written the blurb

▶ **Micro.** BBC B
▶ **Supplier:** Cambridge Micro Software

WATTS IN YOUR HOME (is that supposed to be some joke? Surely they meant Ohm Sweet Ohm!) – is designed to help you calculate the costs of running electrical equipment in your house. Data is provided for different fuel sources so you can calculate the day-to-day costs and make comparisons between households Although the materials isn't related to any specific syllabus, it's of general interest as well as practical value to physics students.

Before starting, you must be familiar with basic units such as joules, therms, and kilowatt-hours. There are copious teaching notes suggesting how the program could be used in science or home economics lessons.

The format of the program is one of lists and bar charts. Students enter details of the energy-consuming appliances in their homes and the program calculates costs and displays them in the form of tables and charts. You can then alter the variables to for instance predict the effect of oil shortages on power costs, or work out how to run your applications within a fixed budget

Not very graphically stimulating, but well-documented and covering a valuable subject

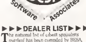
▶ **Micro** BBC B
▶ **Supplier** Cambridge Micro Software

DIGITAL ELECTRONICS is the one subject which all computer users should be expected to know something about Addison-Wesley's computer-aided tutorial package covers all aspects of the subject including binary analogue switching digital to analogue conversion bits and bytes, number bases, and control functions.

The graphics include animated demonstrations of how a "chip" counts, how binary hex and denary are related and how "gates" can react to a series of "and" not "or" operations. The 22-page booklet (which contains more information than you'd expect) works through all the demonstrations, explaining exactly what's going on and giving short exercises to test your comprehension

Part One, Coding Information, is really just an introduction to the subject. It's much too large a subject to be covered in one program, but I can't help feeling that most users of this package are going to feel that they should have had something more for the money

▶ **Micro:** BBC B
▶ **Supplier** Addison-Wesley



▶▶▶DEALER LIST▶▶▶

The national list of edsoft specialists overleaf has been compiled by BESA, the British Educational Software Association The BESA has ten member companies, A.S.K., B.E.S., Calpac Collins, Griffin Hill MacGibbon Kosmos Macmillan, Mirrorsoft and Widgit. If you have any difficulty in locating your nearest approved dealer or want to know more about the BESA products, you can get a catalogue from BESA, 4 Little Essex Street London WC2R 3LF telephone 01-836 6633 ◀

DEALER LIST

RETAILER'S NAME	TOWN NAME (ALPHABETICAL ORDER)	TELEPHONE
	SOUTH WEST	
A B & C Computers	St Austell	0726 64463
Software Plus	Bath	0225 61676
Microtest Limited	Bodmin, Cornwall	0208 3171
Avon Computer Rentals	Old Market, Bristol	0272 550600
Lawrence Associates	Yate, Bristol	0454 321088
George's Computer Bookshop	Bristol	0272 276602
The Forum Computer & Bookshop	Chard, Somerset	04606 5089
Solent Micro Systems	Christchurch, Dorset	0202 470168
Cwmbran Computer Centre	Old Cwmbran, Gwent	06333 60996
Seven Counties (Computers) Ltd.	Dorchester	0305 66022
Seven Counties (Computers) Ltd	Exeter, Devon	0392 211211
Computerware	Exeter, Devon	0392 210507
Computech (Gloucester) Ltd.	Gloucester	0452 423288
Software City	Newbury, Berks	0635 31606
Blackwells Ltd.	Oxford	0865 249111
Computer Systems	Paignton	0803 524284
Lansdowne Computer Centre	Poole	0202 670901
Anderson's Computer Services	Freemantle, Southampton	0703 32629
Barbury Computers	Swindon	0793 611487
Trowbridge Computer Shack	Trowbridge, Wiltshire	02211 67299
	WALES	
Computer Knowhow	Cathays, Cardiff	0222 373000
Cardiff Microcomputers	Cardiff, South Glamorgan	0222 387579
Cardigan Electronics	Cardigan, Dyfed	0239 614483
Computability	Ebbw Vale, Gwent	0495 301631
Computer Centre	Haverfordwest	0437 68228
Gwent Computers	Newport	0633 841760
Microcare Computing	Newport, Gwent	0633 59482
Bocon Ltd	Swansea	0792 467980
	IRELAND	
Educational Company Ltd.	17-19 Queen Street, Belfast	0232 231027
Belfast Micro Centre	Lisburn, Co Antrim	08462 76446
F C Computers	Lurgan, Co Armagh	07622 28543
	MAIL ORDER	
Books For Keeps Software	Aylsham, Norfolk	0261 734864
Load and Run	Dartford, Kent	0322 79967
Talktapes	London	01 485 9881
Morris Educational Associates	Newtown	0686 252610
Cornwall Software	Sennen, Penzance	073687 369
N.E.S.S.	Stockton	0642 601676
Courseware	Nr Warwick	0926 494777
	MIDLANDS	
Electronequip	Kings Lynn, Norfolk	0553 773782
Greens	Coventry, West Midlands	0203 24342
PBC Systems Limited	Derby	0332 365280
Oaktree Consolidated Ltd. (D)	Grantham, Lincs	0476 76994
Logic Computer Centre	Heanor, Derbyshire	0773 769680
R & B Computer Software	Hinckley	0455 61133
Dimension Computers Ltd	Leicester	0533 57479
Micro-Fix	Lincoln	0522 25907
Tetronic Computers Ltd.	11A Castle Meadow, Norwich	0603 663798
G A Computers Ltd.	Ruddington, Nottingham	0602 211225
Micro City	Nuneaton, Warwicks	0203 382049
Logic Sales Ltd	Peterborough	0733 49696
Town Computer Store	Hanley, Stoke on Trent	0782 287540
Homesoft Computing	Tamworth	0827 63549
New Horizon Computer Centre	Walsall	0922 24821
Software City	Wolverhampton	0902 25304
	NORTH EAST	
Alnwick Computerware	Alnwick, Northumberland	0665 604816
The Computer Room	Barnsley	0226 204000
Computing World	Dyer Lane, Beverley	0482 881811
Chester Green Videotheque	Derby	0332 360552
Danum Computer Systems	Doncaster, Yorkshire	0302 20355
Computer Centre	Hull	0482 26297
Spectrum Business Centre	Hull	0482 24346
Telerents (Northern) Ltd.	Morpeth	0670 513537
Tynesoft	Newcastle upon Tyne	0632 723093
Computer Shop	Newcastle upon-Tyne	0632 616260
Computer World	Scarborough, Yorkshire	0723 352381
Topsoft Computer Software	Stockton on Tees	0642 670503
	NORTH WEST	
Cumbria Audio Visual & Electrical	Barrow-in-Furness, Cumbria	0229 29109
Data Exchange	Birkenhead	051 647 918
Computer World (UK) Ltd.	Bolton, Lancs	0204 19430
IMO Computer Centre	Burnley, Lancashire	0282 54299
Elbee Computers	Colne	0282 861275
Micro Abacus Ltd	Formby	07048 31962
Thoughts and Crosses	Heckmondwike, West Yorkshire	0924 4502337
Microman Computers	Mill Lane, Rainford, St. Helens	074488 5242
Castle Computers	Lancaster, Lancashire	0524 61133
Microbyte Software	Leeds	0921 476656
Hargreaves Computers	Liverpool, Merseyside	051 525 176
NSC Computer Shops	Manchester	061 832 226
Home & Business Computers Ltd	Oldham, Lancashire	061 633 160
Central Studios (Photographics) Ltd.	Southport, Merseyside	0704 31881
Microbyte Software	Wakefield	0924 376656
Northern Computers	Penketh, Nr Warrington	0928 35110
Pyramic Micros	Warrington, Cheshire	0925 35713
P D Hendren	Whitehaven, Cumbria	0946 2063
	SCOTLAND	
Micro Shack	Aberdeen, Grampian	0224 636081
Dee Micro	Aberdeen	0224 644350
T C Farries & Co. Ltd.	Lockerbie, Dumfries	0387 720755
Recent Events	Elgin, Morayshire	0343 49937
Mobile Micros Marketing Ltd.	Elgin, Morayshire	0343 49944
Commsoft	Glasgow	041 226 487
Micro Mart	Kirkaldy, Fife	
Tomorrows World	Lerwick	0595 2145
Vics Independent Computer Supplies	Perth	0738 36704
	SOUTH EAST	
CBM Data Software Ltd.	Banstead, Surrey	07373 54717
Data Store	Bromley	460 8991
Adams World Of Software	Edgware, Middlesex	952 0451
Microworkshop	Epsom	78 21533
Tronic Ltd	Harrow	01 861 0036
Harrow Micro	Harrow, Middlesex	01 427 0098
Sunnett Computers Ltd.	380 Richmond Road, Kingston	01 541 1495
Software City	Kingston	01 541 4911
Software City	Chelsea, London	01 352 9220
Computers Inc.	London	01 209 0401
Adams World Of Software	North Finchley, London	01 446 7170
Games World	Hammersmith, London	01 741 4467
Chromasonic Electronics	London	01 263 1705
CYB Computers	Crown Lane, Morden	01 542 7662
P & H Micro and Photo Ltd	Eastcote, Pinner	01 868 6030
Mu Games & Computers	Slough	0753 21594
Logic Sales Ltd	The Bourne, Southgate	01 882 4942
Nimbus Computing	West Wickham, Kent	01 777 3160
Soft Spot	Banbury	0295 68921
Gamer	Brighton	0273 728681
Soft Centre	Brighton	0273 776576
W Heffers & Sons	Cambridge	0223 358351
Canterbury Computer Centre	Canterbury	0227 462101
Computermania	Chichester	0243 779263
Colchester Computer Centre	Colchester	0206 47242
The Book Castle	Dunstable	0582 605670
Electronequip	Fareham	0329 230670
Computer Magic	Ipswich	0473 50965
Computermania	Littlehampton	0903 716187
C S Computer Systems	Margate, Kent	0843 292660
Softly	Central Milton Keynes, Bucks	0908 67029
Compute	St.Neots	0480 72013
Absolute Sound & Video	Headington, Oxford	0865 65961
Micro Choice	Drayton, Portsmouth	0705 327591
Leakes Ltd	Sidcup, Kent	01 300 1142
Computers Plus	Sittingbourne, Kent	0795 25677
LTC	Southampton	0703 024703
ACS Computer Centre	Strood	0634 723679
Software Supplies Company	Whitstable, Kent	0227 266289
Worthing Computer Centre	Worthing	0903 210861
Hobbyte	St. Albans	0727 41396
Dgh Software Centre	Ashford	0233 32597
Geerings Of Ashford Ltd	Ashford, Kent	0233 33366
Chelmsford Computer Centre	Chelmsford	0245 85994
Farnham Computers	Farnham, Surrey	0252 723107
Regal Software Supplies	Gillingham	0634 579634
Gravesend Computers	Gravesend	0474 23871
Adventurer's Guild	26 Harmer Street, Gravesend, Kent	0474 334008
H Reynolds	Grays	0375 5948
Orchard Computer Centre	Horsham, Sussex	0403 64884
Hobbyte	Luton	0582 457195
Kent Micro Computers	Maidstone	0622 52784
Computerama Business Systems Ltd.	Southend-on-Sea	0702 335443
D J Toys Ltd	Stevenage	0438 65501
Midata Computers Ltd	Tunbridge Wells	0892 41555
SRS Microsystems	High Street, Watford	0923 26602
Harpers	Woking	04862 25657



Spellbinding tips and kitchen sinks

Tony Kendle continues with the series of tips from the author of Spellbound

Continuing this week with David Jones s tips on the excellent *Spellbound* In case you missed last week s issue David is the author of the Magic Knight series of games from Mastertronic and has just had the third in the series, *Knight Tyme*, released for the 128K Spectrum at an unbeatable £2 99

Incidentally Mastertronic is doing sterling work supporting some of the underdogs among home micros such as the C16 I am particularly pleased to see conversions appearing for the old Atari micro Thanks to Mastertronic US Gold and English software we can be sure that the days of vastly overpriced software for the 8-bit Ataris are well and truly dead There is a vast amount of excellent software available for these computers and since they can now be picked up in the high street at ridiculously cheap prices they re definitely my tip for a games machine

One of the problems we left you sweating over from last week was how to stop Thor dropping dead on you at every available opportunity David writes ' Thor must be told to go to sleep or he will die of exhaustion By doing this you will ensure that he is fit and well and can help you when you have found his hammer Thor will need his hammer before he can help you fix the lift Just for fun try taking Thor's hammer away from him after you have given it to him '

Here are the rest of the tips Stand in the pool of liquid to cast the armouris photonicus spell It will then be safe to drop the glowing bottle as all the light you need will be supplied by your illuminated armour

Book of runes

'The broken glass that you get by dropping the glowing bottle can be usefully employed in conjunction with something that you cannot otherwise read

You will need the book of runes before you can understand the writing scratched on the runestone Look out for something smelly in the basement. The pictures on the walls are very important if you want to get a full 100%

Before you can release Gimbal the wizard you will first need to find him He is past the secret tunnel and on the other side of the pit To release Gimbal you must cast the crystallium spectralis spell details of which are included in the ancient scroll on the far side of the tower

A good luck charm must be in the same room as you if you use the candellium illuminatus spell to light the candle

' The project physical body spell is one of the most powerful spells that magic knight can cast in this game For it to work he must have something very magic that was broken and is not mended plus the crystal ball for the location of the target

The crystallium spectralis spell must be case in the presence of Gimbal the wizard

As well as David's tips we have some that have been sent in by Jason Watkins of Gravesend

The blue crystal will let you throw light objects at people Give Erik the cleric the book of shadows

To cast the fumaticus protectium spell you will need the red herring and the above mentioned smelly object To cast the candellium illuminaticus you will need the runestone and the four-leaf clover Give Florin the gold goblet.'

Exploding Fist winners soon

Thanks to David and everyone else for their letters on *Spellbound*, I m sure it is not the last we will hear of Magic Knight in the column

Before we can push on there are one or two things we have to clear up from past issues

The pokes given for Amstrad *Sorcery* (on tape) had a missing bracket which generated the *Syntax Error* message The problem can easily be corrected by consulting your computer manual but to recap, the offending line should read

```
FOR I=2228 TO 12J84 POKE (I 11264) PEEK (I)
NEXT SAVE INFINITE ENERGY B 1024 95 1024
```

Jason Temprell of Mansfield wants to know what happened to the winners of our BBC *Exploding Fist* limerick competition

Well Jason, everything was passed to Melbourne House for the judging and I hope to print the list of winners soon but you can take it that if you haven t heard by now you aren t one of the lucky ones

Shelley Baron writes again concerning *Chuckie Egg II* Having spoken to AnF I can confirm that it has not gone out of business and that it was most helpful with my problem However thank you for publishing my first letter as without it I would not have been able to contact the company The answer is that before you can get anywhere with the baskets you first have to get the lift working and start the generator This means that you have to work your way down to the bottom turn the generator on (can anyone tell me where it is?) and return to the beginning to collect the milk sugar etc I m glad to hear that your tale of AnF s demise was exaggerated as it has produced some excellent games to date and I hope for many more

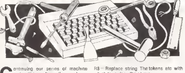
Fastest ship

Finally this week comes a letter from a S Veeraegsoin of Bristol who takes exception to our *Mercenary* tips of a few weeks ago In fact the fastest ship in the game is not the cheese but a ship referred to as Palya s brother In law's new ship which is found flying at 500ft and at 100mph above the city If you capture this ship no name is given only if you shoot it down do you get the above description of it from Benson

To capture the ship you must first have a kitchen sink (a *what?*) which you can find in the Palya Colony Craft in the kitchen With the kitchen sink on board fly at the altitude mentioned above When you have the ship in sight slow down to match the speed and fly into the craft as if to crash but then press T To board the captured ship you must get into one of the hangars and drop it If you try to board it on the planet surface, you will not succeed as it will fly away and remain at ground level

The speed of Palya s brother in-law's new ship is 1931 on land and 5787 in the air but by pressing the plus key you can reach a speed of plus **75 – only the inter stellar craft can go faster than this

Next week we will be going back to the world of *Marsport*



SEARCH

by Paul Murray

Continuing our series of machine code utility routines this week we present Search and Replace

Search and Replace

This routine will look through a program or occurences of a specified combination of tokens letters numbers etc and will replace these with a different combination

Two variables must be entered

F$ = Find string Those tokens etc, which are to be replaced

R$ = Replace string The tokens etc with which to replace the above

For example, if a program is to be made microdrive compatible then it may be required to convert all instances of *Save* to *Save" m" 1* This can be done by entering *Let F$ = Chr$(248) Let R$ = Chr$(248) + " M " 1 Randomize Usr 64613* where 248 is the code for Save (see Spectrum manual appendix A for a complete list)

After calling the routine in the manner described above all *Save*s would have been converted to their microdrive equivalents

Note that unlike string search and replace routines this routine will successfully replace numbers as well as strings and tokens

To install the program you will need to use the Basic loader and enter the code as printed this week

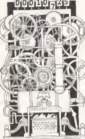
However if you would like the whole suite of programs without the typing effort then a cassette can be obtained from Paul Murray direct for £3 including p&p Write to him at 5 Hanham Mills Hanham Bristol BS15 3NU

Name	Call at	Parameters
Search	64613	F$ = Find string R$ = Replace string

64613	42	93	92	229	33
64618	133	252	205	137	252
64623	34	85	252	237	83
64628	91	252	33	135	252
64633	205	137	252	34	87
64638	252	237	83	93	252
64643	24	20	70	36	82
64648	36	39	93	92	205
64653	178	40	48	2	207
64658	1	35	94	35	86
64663	35	201	42	91	252
64668	34	95	252	42	85
64673	252	205	167	253	42
64678	95	252	237	91	91
64683	252	167	237	82	237
64688	91	87	252	35	34
64693	87	252	42	95	252
64698	34	91	252	42	93
64703	252	34	95	252	42
64708	87	252	205	167	253
64713	42	95	252	34	93
64718	252	237	91	91	252
64723	42	85	252	43	114
64728	43	115	237	91	93
64733	252	42	87	252	43
64738	114	43	115	42	83
64743	92	229	1	0	0
64748	237	67	89	252	167
64753	237	91	75	92	237
64758	82	225	32	6	225
64763	34	93	92	207	255
64768	35	35	78	35	70
64773	35	197	229	229	11
64778	120	177	40	37	229
64783	42	91	252	35	34
64788	95	252	225	237	91
64793	85	252	229	42	95
64798	252	43	124	181	34
64803	95	252	225	40	28
64808	26	190	35	19	40
64813	237	225	35	229	24
64818	214	225	209	193	42
64823	89	252	9	235	43
64828	43	115	35	114	35
64833	25	24	164	237	67
64838	99	252	237	75	91
64843	252	42	89	252	167

64848	237	66	34	87	252
64853	42	87	252	167	237
64858	66	34	87	252	42
64863	85	252	167	237	66
64868	34	85	252	225	205
64873	232	25	229	237	75
64878	93	252	42	87	252
64883	9	34	87	252	42
64888	85	252	9	34	85
64893	252	225	205	85	22
64898	19	213	237	75	93
64903	252	237	91	87	252
64908	235	19	237	176	42
64913	89	252	237	75	93
64918	252	9	34	89	252
64923	225	9	209	237	75
64928	99	252	213	229	195
64933	9	253	253	54	71
64938	0	43	229	42	95
64943	252	35	34	97	252
64948	225	34	93	92	231
64953	229	42	97	252	43
64958	34	97	252	124	181
64963	225	200	126	254	34
64968	32	10	253	126	71
64973	238	1	253	119	71
64978	24	228	254	196	40
64983	12	254	88	40	220
64988	254	46	40	4	254
64993	48	56	212	253	203
64998	71	70	32	206	229
65003	205	155	44	193	167
65008	237	66	68	77	42
65013	97	252	167	237	66
65018	35	34	97	252	33
65023	6	0	25	229	1
65028	6	0	42	95	252
65033	9	34	95	252	42
65038	93	92	205	85	22
65043	35	54	14	35	235
65048	213	239	192	56	33
65053	146	92	1	5	0
65058	209	237	176	225	235
65063	34	93	92	239	2
65068	56	24	137	205	107

CHECKSUM=58491



CHARACTER SET

by Mike Lloyd

The QL's character set has eight different size settings, but only the one font is used. The usual method of improving screen displays is to redefine the character set but this requires a large amount of planning and well over a kilobyte of data. The simple routine listed here allows you to draw characters pixel by pixel using any pixel design your imagination can come up with. The characters can be of any width and height.

The variables passed to the procedure allow the selection of screen position, width, height and colour of the output. Variables used within the listing are declared in a *Local* statement so that they can be used without problem within any program. After setting the ink colour to the appropriate value the routine establishes where in the Rom the character set is stored. The QL's font is divided into two sections and the address *Peeked* is the start of the font for ASCII values 32 to 127 (ie the space through the figures and alphabets to the copyright symbol) so the routine is limited to using only these characters. The rest of the routine is a series of nested loops at the heart of which lies the pixel drawing routine.

The pixel design included in the main listing produces blocks identical to the standard QL print but it is not limited to the normal *Csize* values. Listed below the procedure are four alternative pixel designs, some of which are demonstrated in the printout shown.

It should be noted that the co-ordinates used by the *Circle* command are not the same as those used by *Block* and *Cursor*. Finally although the printing speed is slow compared with the QL's normal print speed (which is itself nothing special) it is perfectly acceptable, particularly when drawing screens for dumping to a printer.

```
* Lo by characters

* Main Listing

100 DEFine PROCedure BIGprint (x,y, xpix,ypix, col,a$)
110 LOCal base,bit,byte,cbase,chr,xpos
120 INK col:base = PEEK_L (PEEK_L (163844)+298)
130 FOR chr = 1 TO LEN(a$)
140   cbase = base +9*(CODE (a$ (chr))  31) +2
150   xpos = x+(chr-1) *xpix *8
160   FOR byte = cbase TO cbase+8
170     IF PEEK(byte)
180       FOR bit = 1 TO 5
190         IF PEEK (byte) && (2^(7-bit))
200 :
210 REMark >> Insert pixel drawing routine
220 :
230 BLOCK xpix+1, ypix, xpos+xpix+bit*xpix, y+(byte-cbase)*ypix, col
240 :
250 REMark >> End pixel drawing routine
260 :
270         END IF
280       NEXT bit
290     END IF
300   NEXT byte
310 NEXT chr
320 END DEFine bigchar

* character pixels

230 CURSOR xpos+xpix+bit*xpix,y+ypix+(byte-cbase)*ypix:PRINT a$(chr)

* circular pixels

230 CIRCLE xpos+bit*xpix,y-(byte-cbase+1)*ypix,xpix/2

* shadow style

230 BLOCK xpix+4, ypix+2, xpos+xpix+bit*xpix, y+(byte-cbase)*ypix, 0
235 BLOCK xpix+1, ypix, xpos+xpix+bit*xpix, y+(byte-cbase)*ypix, col

* italic style

230 BLOCK xpix+1,ypix,xpos+xpix+bit*xpix+6-byte+cbase,y+(byte-cbase)*ypix,col

* Example calls

10 FOR colour = 1 TO 7: BIGprint 10,60, 10,8, colour,"PCW"
20 BIGprint 0,30, 3,2, 94,"Popular Computing Weekly"
```

PCW

Popular Computing Weekly

Circles

Shadow script



PLANETS POSITIONS

by David Webber

This program to be printed over two weeks, may be a long one but is certainly well worth the effort for anyone who has the slightest interest in astronomy.

What it will do is calculate the positions of all the planets at any time of the day or night between 1/1/75 and 31/12/99. Exact data will be given, showing the Latitude and Longditude relative to the Eclyptic – and also the Right Ascension and Declination on the Equator.

For the non-technical however 3 star Charts also show the positions of the planets and moon up against the background of the star constellations in the night sky.

The program is written in Basic so should work on all Amstrad machines. If anyone can't face the thought of all this typing then tape copies can be obtained for £2.50 from David Webber at Cummel Fayle, Ballaterson, Ballaugh, Isle of Man.

More listing next week

```
10 REM ************************
20 REM * PLANETS POSITIONS *
30 REM ************************
100 MODE
110 LOCATE ' a:PRINT"PLANETS POSITIONS
120 LOCATE 1,9 PRINT CHR$(164)" b,"
130 LOCATE 4 12:PRINT D T Webber"
140 FOR n=1 TO 2500:NEXT n
150 MODE 2 BORDER 1P:INK 1 C:INK 0,18
160 hm$" L A N E T S   P O S I T I O N S
1   p$=CHR$(143):FOR n=1 TO 57:LOCATE ,1:PR
INT p$:NEXT
180 LOCATE 40-(LEN(h$) 2),7:PEN 1:PAPER 1:PRI
NT h$:PEN 1:PAPER 0
1   p$=CHR$ 143  FOR n=1 TO 57:LOCATE , 3:PR
INT p$:NEXT
    LOCATE 1,5 PRINT "  This Program will cal
culate the positions of the planets between 1
 1 75          and 31 12 99 and contains the f
ollowing:"
    PRINT
    PRINT TAB(6) Planets Longitude and Latitu
de":PRINT
    PRINT TAB(6 "Planets Right Ascension and
Declination :PRINT
    PRINT TAB(6 "Moon s position :PRINT
    PRINT TAB(6)"Star charts showing position
s of Planets    PRINT
    PRINT TAB(6)"Each Planet is located on th
e Star charts at the top left corner of the"
    PRINT TAB(6)"capital letter representing
the Planet as follows":PRINT
    PRINT TAB(6)"Mo = Moon";TAB(30)"Me = Merc
ury";TAB(50) V = Venus"
    PRINT TAB(6)"Ma = Mars";TAB(30) J  = Jupi
ter";TAB(50)"S   Saturn
    PRINT TAB 6)"U    Uranus";TAB(30)"N  = Ne
ptune";TAB(50)"P = Pluto
    LOCATE 6 23:PRINT Press to continue"
    IF INKEY$="" THEN GOTO 320
    REM  -----------------
    REM  CALCULATION OF DATE
    REM  -----------------
420 CLS:DEG
440 MODE 2
45  DIM [illegible]
460 FOR j=1 TO 12:READ k(j):NEXT j
47  q=2?1?3
48  LOCATE 1,5:PRINT Enter date required eg 1
 11 75
49  PRINT:INPUT"Day     ";d
50  INPUT"Month  ";m
51  INPUT"Year   ";y:IF y 75 OR y 99 THEN PRIN
T    ea  out of range-should be between 75 and
 99 :GOTO 51 :PRINT:PRINT
52  [illegible] INT(y/4) AND m 3
THEN  =-1
530 [illegible]
54  [illegible] INT(x/7)+1
55  a$="SunMonTueWedThuFriSat"
55  [illegible] PRINT "Date "; MID$(a$,?  ,3); ,
    [illegible]
    PRINT
    PRINT 31,28 30 31 31,31 3. 30 33,34,34
    [illegible]
    PRINT"Enter time required eg hour 24 hour
 clock and minute
    PRINT"Deduct 1 hour for BST
6   PRINT:INPUT Hour    ";h
63  INPUT"Minute  ";mn
640 h=h+(mn/60):... /1440
650 [illegible]
660 LOCATE 5,25:PRINT"Is this information cor
rect? Y N"
67  a$=INKEY$:IF a$ " THEN GOTO 67
68  IF a$="Y" OR a$="y" THEN CLS:GOTO 830
690 IF a$="N" OR a$="n" THEN CLS:GOTO 47
7   IF a$  "Y" OR a$  y  OR a$  "N" OR a$
n" GOTO 66
800 REM  --------------
810 REM  SET UP TABLES
820 REM  --------------
830 CLS
84  PRINT TAB(24)"P L A N E T S   P O S I T I
O N S"
85  PRINT TAB(24)STRING$ 33 45)
860 PRINT TAB(3 )"on    ;MID$(a$,3*,-2 3)) "(
   " "19" "1/
870 LOCATE 16,6:PRINT"Ecliptic Co-ords":TAB(4
4)"Equatorial Co-ords"
880 LOCATE 16,8:PRINT "Long":TAB(30)"Lat";TAB
(45)"R A  ;TAB(62)"Decl
890 LOCATE 16 9:PRINT deg ;TAB(30)"deg";TAB(4
5)"hr min";TAB(6 )"deg min"
900 LOCATE 9 .2:PRINT Wait for full printout"
910 PRINT
920 GOSUB 1000
930 GOSUB 12 0
940 GOSUB 1600
1000 REM          ---
1010 REM POSITION OF SUN
1020 REM          ---
1030 IN  1, 
1040 s=[illegible]/365 25
1050 WHILE s =360:IF s =360 THEN s=s-360:WEND
1060 IF s   THEN s=s+360
1070 g=279 04107 s=,02 51 35[illegible]
1080 [illegible]
1090 IF s  THEN [illegible]
110  [illegible]
1110 [illegible]
1120 WHILE k =360:IF k =360 THEN k=k-360:WEND
1130 IF k 0 THEN k=k+360
1140 a=ROUND(l ,2
1150 [illegible]
1160 GOSUB 3 
117  LOCATE 1 11 PRINT Sun         ;:GOSUB 39
0
118  RETURN
1200 REM ----------------
1210 REM POSITION OF MOON
1220 REM ----------------
1230 m1=174 075:pp=145.9:l=248 [illegible]
-1453:me=6.0549
1240 GOSUB 1000
1250 l=[illegible] 27.3217:m1
1260 WHILE l =360:IF l =360 THEN l=l-360:
WEND
1270 m=[illegible]/365 25[illegible] 6.85  m
1280 WHILE m  :IF m 0 THEN m=m+360:WEND
1290 n=[illegible] 365 25[illegible]
1300 WHILE n  :IF n 0 THEN n=n+360:WEND
1310 [illegible] 274*SIN(2*[illegible])
1320 [illegible] 186*SIN(ma)
1330 [illegible] .7*SIN(ma)
1340 [illegible]
1350 [illegible] *SIN(y)
1360 [illegible]
1370 [illegible] SIN(2*[illegible])
1380 [illegible]
1390 WHILE la 0:IF la 0 THEN la=la+360:WEND
1400 WHILE la =360:IF la =360 THEN la=la-360
:WEND
1410 la=ROUND(la 2
1420 [illegible] SIN(ma
1430 [illegible] SIN [illegible]
1440 DEF FNa( ) = ATN( [illegible]
1450 [illegible]
1460 [illegible] ROUND [illegible] 2)
1470 [illegible]
1480 GOSUB 3700
1490 [illegible]
1500 PRINT"Moon         ;:GOSUB 3900
1510 RETURN
1600 REM --------
1610 REM MERCURY
1620 REM    --
1630 tp=[illegible] .4085:a=32  ... /5:w=77.0 [illegible]
05629 a= 387 [illegible]
1640 [illegible] 304.[illegible]:nd=48 0340?
1650 GOSUB 2600:GOSUB 3200:GOSUB 3400
1660 [illegible]
1670 PRINT Mercury    ";:GOSUB 3900
1700 REM ----
1710 REM VENUS
1720 REM  ---
1730 tp=0 615.2 op=31  97455 w=131 21928:e=0.
006785 a=0 723332
1740 [illegible]=3 ,9428,nd=76 45475
1750 GOSUB 2600:GOSUB 3600:GOSUB  4 0
1760 [illegible]
1770 PRINT Venus      ";:GOSUB 3900
1800 REM ---
1810 REM MARS
1820 REM ---
1830 tp=1 88.09 op=249 42019:w=336 3[illegible]:e=0
0933802 a=1 52371
1840 [illegible] 8492:nd=49 3[illegible]
1850 GOSUB 2600 GOSUB 3200:GOSUB 34 0
1860 [illegible]
```

```
1870 PRINT Mars      ";:GOSUB 3900
1900 REM -------
1910 REM JUPITER
1920 REM -------
1930 tp=11 86224:wp=325 2341@:w=13 91092 te=0
 048@:a=5 202804
1940 to=1 3o453:nd=100,1@6u8
1950 GOSUB 2600:GOSUB 3200:GOSUB 3400
1960 tp=tl:tf=01
1970 PRINT"Jupiter   ";:GOSUB 3900
2000 REM -------
2010 REM SATURN
2020 REM -------
2030 tp=29 4577:ep=130 47278:w=92 22833:e=4.
 5o3:a=9 538044
2040 to=" 48933:nd=113 43842
2050 GOSUB 2600:GOSUB 3200:GOSUB 3400
2060 tp=tl:tg=01
2070 PRINT"Saturn    ";:GOSUB 3900
2100 REM ------
2110 REM URANUS
2120 REM ------
2130 tp=84.01247 ep=205 7020:w=170 2547"te=
 .04"25:a=19 141854
2140 to=0 7731:nd=73 97283
2150 GOSUB 2600 GOSUB 3200:GOSUB 3400
2160 th=tl:tn=01
2170 PRINT"Uranus    ";:GOSUB 3900
2200 REM -------
2210 REM NEPTUNE
2220 REM -------
2230 tp=164 7955 ep=249 "14o2:w=44 40077:e=0
 .0@5o1:a=30, 674o
2240 to=1 / 236:nd=131 5050o
2250 GOSUB 2600:GOSUB 3200:GOSUB 3400
2260 tl=tl:t=01
2270 PRINT"Neptune   ";:GOSUB 3900
2300 REM -----
2310 REM PLUTO
2320 REM -----
2330 tp  46 .18:ep=22..545 w=224 258:e=0 74b
 11":a  9.2997o
2340 to=17 1445l:nd=109 9765
2350 GOSUB 2600:GOSUB 3200:GOSUB 3400
2360 tv=tl:tk=01
2370 PRINT Pluto     ";:GOSUB 3900
2400 REM ---------------------
2410 LOCATE 9 22:PRINT STRING$(2. 32)
2420 LOCATE 9 22:PRINT PRINTOUT COMPLETE"
2430 LOCATE 9 20:PRINT Do you wish to see oth
er charts" Y N"
2440 a$ INKEY$:IF a$=  GOTO 2440
2450 IF a$="Y" OR a$="y" THEN CLS:GOTO 40
2460 IF a$="N" OR a$ "n" THEN CLS:GOTO 2480
2470 IF a$  "Y" OR a$  "y" OR a$   N  OR a$
"n" GOTO 243)
2480 LOCATE 29,12:PRINT"END  OF  PROGRAM
2490 LOCATE 27,14:PRINT"Type RUN to restart":
END
2600 REM --------------------
2610 REM CALCULATION FOR PLANET
2620 REM --------------------
2630 np=36 ,e/365 25/tp
2640 WHILE np =360:IF np =360 THEN np=np 360
WEND
2650 WHILE np 0:IF np    HEN np np+360:WEND
2660 l=np+(360*e/PI)*SIN np+ep-w)+ep
2670 WHILE l =360:IF l 360 THEN l l 360:WEND
2680 WHILE l 0:IF l 0 THEN l=l+360:WEND
2690 vp=l w
2700 rp=a*(1 e 2 /(1+e*COS vp))
2800 REM  --------------------
2810 REM CALCULATION FOR EARTH
2820 REM  --------------------
2830 te=1 00004:pe=99 5743:we=102.51044:ee=
.01672
2840 ne=*de /365 25 te
2850 WHILE ne =360:IF ne =360 THEN ne=ne-360
WEND
2860 WHILE ne 0:IF ne 0 THEN ne=ne+360:WEND
2870 le=ne+(360/PI *ee*SIN(ne+pe-we +pe
2880 ve=le-we
2890 re=(1-ee 2)/(1+ee*COS(ve))
2900 RETURN
3000 REM --------------------------
3010 REM INFERIOR PLANETS POSITIONS
3020 REM     IN RELATION  O EARTH
3030 REM -------          --
3040 ZA=LE+L
3050 WHILE ZA 0:IF ZA      THEN ZA=ZA+3 :WEND
3060 WHILE ZA>=360:IF ZA 360 THEN ZA=ZA-360
WEND
3070 ZB=180+LE
3080 ZC=RP*SIN(ZA)
3090 YD=RE RP*COS(ZA)
3100 "e=ZC "d
3110 RETURN
3200 REM -------------------------
3210 REM SUPERIOR PLANETS POSITION
3220 REM   IN RELATION TO EARTH
3230 REM ------------ -----------
3240 za=l le
3250 WHILE za 0:IF za 0 THEN za=za+360:WEND
3260 WHILE za =360:IF za =360 THEN za=za-360
WEND
3270 zb=l
3280 zc=re*SIN za)
3290 zd=rp re*COS(za
3300 ze=zc  d
3310 RETURN
3400 REM -------------------
3410 REM LONGITUDE CALCULATION
3420 REM -------- ------
3430 zf=ATN(ze)
3440 le=zb+.l
3450 WHILE le 0:IF le   HEN le=le+360:WEND
3460 WHILE le =360:IF le  =360 THEN le=le 360
:WEND
3470 le=ROUND(le 2)
3500 REM    --          -- --
3510 REM  LATITUDE CALCULATION
3520 REM  -------      ---
3530 v=SIN(i) nd =SIN ta)
3540 DEF FNa(x)=ATN(  SQR  (x*x+1))
3550 v=FNa(v)
3560 vs=ln-l  nd+l te
3570 re=re*COS(v
3580 vc=re*TAN(v)*SIN(vd)
3590 vs=re*SIN(va)
3600 vl=vc vs
3610 vs=ATN(vl)
3620 vs=ROUND vs .)
```




DISC MONITOR

by D Baker

Following on from last week here is the remainder of the code and instructions

Display Format – When a block is loaded by selecting F1 from the menu, only 128 bytes are displayed due to the screen size, although all 256 are in Ram and available for editing, etc By using the (F3) key you toggle between the two half blocks as often as required The Track/Sector are displayed at screen top followed by 16 lines of code Each line begins with the Block Address of the line of eight hex bytes that follow The line ends with the eight bytes displayed as ASCII characters (if alphanumeric) or   for a non-alpha character

$00 00 FF 00 11 00 44 4B 4D DKM

$00 shows that this line displays the first eight bytes of the Block (bytes 00 to 07) 00 to 4D are the Hex values of these eight

Programming: Commodore 64

bytes. The first five values are non-alphanumeric when converted to ASCII (Chr$(0) Chr$(255) etc) whilst $44 $4B $4D equate to the letters DKM

8 printer dump displays all 256 bytes in this form The screen display will always display one Hex value and its equivalent ASCII byte in inverse characters this is the 'Edit Byte' and by typing a new hex value you can change the byte as required – both digits of the byte must be typed the program will always wait for the second byte The cursors let you move around the block to select a new byte to edit.

Following editing of a block do not forget that to record the changes made you must save the amended block back to disc

Should you make a mess of any editing attempt simply reload the relevant Block and start again disc contents are only changed following a Block Save

[illegible]

[illegible]

Programming: Bytes & Pieces

File Reader on BBC B

by Chester Gillon

This is a universal file reader program for the BBC B. It will read any file created with the Basic command, *Print channel*. The user has to input the file name and if it is the wrong file type eg, a Basic program, it will stop with the message, Wrong File Type.

If the file is of the correct type, the program will list the contents of each field, along with its type (string, integer or floating point number).

At the end, the program will print the total number of strings, integer and floating point numbers.

In my own work, I have found this useful in de-bugging database programs, especially in dealing with the dreaded 'Type mismatch' error.

```
100 P=0:T1=0:T2=0:T3=0
110 INPUT "FILENAME?"F$
120 X=OPENINF$
130 REPEAT
140 A=0:A%=0:A$=""
150 PTR#X=P:B=BGET#X:PTR#X=P
160 IF B=0 THEN INPUT#X,A$:PRINT "STRING      =";A$:P=P+2+LEN(A$):T1=T1+1
170 IF B=64 THEN INPUT#X,A%:PRINT"INTEGER     =";A%:P=P+5:T2=T2+1
180 IF B=255 THEN INPUT#X,A:PRINT"F.P. NUMBER=";A:P=P+6:T3=T3+1
190 IF B<>0 AND B<>64 AND B<>255 THEN PRINT "WRONG FILE TYPE":CLOSE#X:STOP
200 UNTIL EOF#X
210 PRINT:PRINT
220 PRINT"TOTAL NUMBER OF RECORDS:";T1+T2+T3
230 PRINT"TOTAL NUMBER OF STRINGS:";T1
240 PRINT"TOTAL NUMBER OF INTEGERS:";T2
250 PRINT"TOTAL NUMBER OF F.P. NUMBERS:";T3
260 CLOSE#X
```

Bubble Sort on C64

by Lionel Jack

This is a Two-way Bubble Sort for the Commodore 64. On running, the program will sort positive numbers from the lowest to highest values – the Rem statements show alterations to be made to sort from highest to lowest.

Line 160 converts the results to two decimal places, but can be omitted if desired (with the removal of FNR' in Line 180).

This example sorts 10 numbers, but can be extended simply with the use of Dim statements, ie, *DimA(25), For I=1 to 25* etc.

```
10  PRINT "clr":CHR$(144):POKE 53281,1
20  C=0:P=1
30  FOR I=1 TO 10
40  PRINT TAB(4)"NUMBER"I;:INPUT A(I)
50  A(P)=A(I):C=C+A(I):P=P+1
60  NEXT I
70  D=C: REM D=1
80  FOR I=1 TO 10
90  FOR P=1 TO 10
100  IFA(I)>=A(P) AND A(P)<D THEN D=A(P): REM >=< and <=>
110  IFA(P)<=D THEN V(I)=P: REM <=>
120  NEXT P
130  A(V(I))=A(V(I))+C:D=C  REM +C becomes -C and D=1
140  NEXT I
150  PRINT "home"
160  DEF FNR(X)=(INT(X*100+.5))/100
170  FOR I=1 TO 10
180  PRINT TAB(24) FNR(A(V(I)))-C: REM -C becomes +C
190  NEXT I
```

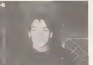
Trace Routine on Amstrad

by Alastair Scott

The Amstrad Trace routine is very unsatisfactory, as it prints the current line number at the cursor position and corrupts the display. The routine here remedies this.

Type in the listing, which will Poke in the necessary data in to memory – between &A000 and &A0A7. Run the program, and type *Step On Tron* to change to the new Trace. Now, on running a Basic program, the line number being currently executed will be printed at the bottom of Window 7 and the program will wait for the Tab key to be pressed before continuing with the next line. To return to normal program control, type *Step Off Troff*. In the course of execution the program (obviously) redefines the Tab key. To return to normal, type *Key Def 68 0 9*. NB. This was developed and tested on a CPC464.

```
10   Single Stepping
20   by Alastair Scott
30 MEMORY &9FFF:MODE 2:cs=0
40 FOR a=&A000 TO &A0A7
50 READ a$:POKE a,VAL("&"+a$):cs=cs+PEEK(a)
60 NEXT
70 IF cs<>18787 THEN PRINT CHR$(7)"DATA ERROR":END
80 CALL &A000:PRINT"!STEP.ON and !STEP.OFF command
s initialised.":END
90 DATA 01,09,A0,21,21,A0,C3,D1,BC,11,A0,C3
100 DATA 25,A0,C3,38,A0,53,54,45,50,2E,4F,CE
110 DATA 53,54,45,50,2E,4F,46,C6,00,00,00,00
120 DATA 00,3E,44,06,00,CD,27,BB,3E,C3,32,5A
130 DATA BB,21,3E,A0,22,5B,BB,C9,F5,CD,37,BD
140 DATA F1,C9,E5,D5,C5,CD,38,A0,47,21,A2,A0
150 DATA 7E,FE,00,20,23,78,FE,5B,28,05,CD,5A
160 DATA BB,18,44,21,A2,A0,34,CD,7B,BB,22,A3
170 DATA A0,3E,07,CD,B4,BB,32,A5,A0,26,01,2E
180 DATA 19,CD,75,BB,78,CD,5A,BB,78,FE,5D,20
190 DATA 22,3A,A5,A0,CD,B4,BB,2A,A3,A0,CD,75
200 DATA BB,21,A2,A0,36,00,06,64,C5,06,00,10
210 DATA FE,C1,10,F8,3E,44,CD,1E,BB,28,F9,CD
220 DATA 25,A0,D1,B1,E1,C9,00,00,00,00,00,00
```



Calling America – on the cheap

David Wallin explains Packet SwitchStream (PSS), the inaxpansiva way to log-on to US Bulletin Boards

This week s column looks at a cheaper way to access US Bulletin Boards – you can save up to £30 off an hour s call for example

Th s is via a system called PSS Packet SwitchStream

Very basically it s a network of phone lines which can be accessed from most local phone exchanges like Prestel, and therefore you are only charged at a local call rate To explain PSS in full would fill a couple of fair sized books but today I ll give you an introduction and later we'll take a bit more space and go into it in more detail

The phone lines used for the PSS system are specifically for computers and data transfer only and so are of a higher quality and data is sent to a much higher standard The only time that the data is sent over a normal phone line is when it goes from your house to the local exchange Another reason that PSS uses dedicated phone lines is that it uses time division multiplexing

Time division multiplexing means that lots of calls use the line at the same time The way TDM works is this each person who is using the line is on it for a *very* short time

They each get enough time to send one packet of data Heavyweight machines called multiplexors sort out who has sent the data and where it should go

A Packet of data is a string of data 128 characters long with a few more characters added saying where the data is going to and where it came from Hence the name Packet SwitchStream it switches between packets of data on different streams

Although it may sound as if it would be very slow sending data in 128 byte long bits it is in fact so fast that you won t notice it unless you spend hours looking for it.

To get PSS you need a computer and a modem capable of handling either 1200/1200 full duplex, 1200/75 or 300/300 baud Also it must be able to handle the following data format. 8-bit word length one stop bit and no parity (8,N,1)

Most software will give you this and if yours doesn t then look around for software that does

To use PSS you must contact the PSS Customer Service Group to obtain a NUI (Network User ID), a 12 character password This proves to the PSS exchange that you are a known user – and so it can charge your bill

Using PSS is not the easiest pastime in the world Having dialled up you start by typing in

Return Return D1 *Return*

The computer then prints up a message similar to

LON/A02-19201059

This is London the area of the PSS exchange/the number of the 'port you have been given Next you type in your NUI which will be displayed on-screen The computer will respond with *Add* upon which you enter the PSS number of the service you want For the on-line directory of PSS services the number is 21920100515 the UK dialling code is 234 so you would type A21920100515 (A for address)

If +COM then appears, connection has been achieved When you log-off PSS will give you some info on how long you were on-line etc

PSS can be used to most of the large developed countries in the world and some of the smallest, spanning Australia Brazil, The Ivory Coast, the USA and the UK PSS is only the name of the British service Japan for instance has DDX-P and Venus-P and the USA has 10 different services

To dial a foreign country using PSS is not too difficult, but some networks are different basically you just give a 9 then the Data Network ID code (DNIC) for the network you want before the number International PSS calls are routed via the IPSS, the International Packet SwitchStream

Just because it s cheaper than a normal phone call don t assume it's cheap in its own right For an hour to the USA phone charges on a normal call are £36 but on IPSS it s only £6 – the connect time charge only But you also have to pay for the amount of data which you send

More details on PSS can be obtained from Packet SwitchStream Customer Services Group, G07 Lutyens House 1-6 Finsbury Circus London EC2M 7LY (01 920 0661)

Or watch this space for more information about PSS, including how to make it work exactly how you want it

It is unlikely that you would use PSS to call a number in the UK but for services in the US such as Compuserve and The Source which are massive information services, PSS is essential as you will find that you spend ages on-line

If you have any queries, tips or comments to make about any aspect of micro communications David Wallin would love to hear from you

Write to him at *Popular Computing Weekly* 12-13 Little Newport Street London WC2H 7PP

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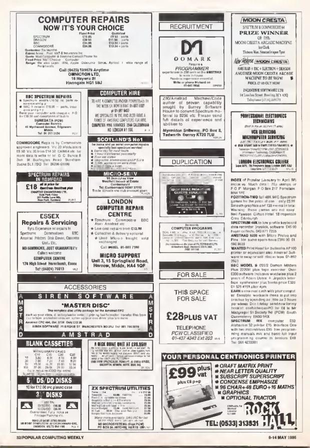
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New Releases

Graham Taylor looks through this week's new arrivsls

Amstrad

Program *Basic +* **Type** Utility **Machine** Amstrad **Price** £5 00 **Supplier** AM Scott 30 Talbot Street, Grangemouth Stirlingshire, FK3 8HU

Program *Bomb Jack* **Type** Arcade **Machine** Amstrad **Price** £8 95 **Supplier** Elite Anchor House Anchor Road, Aldridge, Walsall WS9 8PW

I can't understand why *Bomb Jack* is so successful I must be missing something in the game which has already proved very successful on the Spectrum and Commodore and has now been converted to the Amstrad

The game involves bouncing around the screen, as high as you can and guiding your bounce with the joystick trying to clear the screen of bombs The usual weebles get in your way and there are the usual bonus objects which allow you to leap safely on your enemies

The only possible point of interest I can find in the game, which is I admit, a very exact replication of the arcade machine original is that each screen is played out on a scenic tourist spot from around the world

Well I suppose all that compuling power that isn't being used on the graphics or game logic might just as well be used for picturesque backgrounds

Still, there are evidently plenty of people who do find *Bomb Jack* a thrilling game, and this is certainly a professionally produced conversion

Program *Gunfight* **Type** Arcade **Machine** Amstrad **Price** £9 95 **Supplier** US Gold, Unit 10 Parkway Industrial Centre, Heneage Street, Birmingham B7 4LY

Program *Starquake* **Type** Arcade **Machine** Amstrad **Price** £8 95 **Supplier** Bubble Bus, 87 High Street, Tonbridge, Kent TN9 1RX

Program *The Key* **Type** Utility **Machine** Amstrad **Price** £9 90 **Supplier** Gatsolve 135 Manor St Accrington Lancashire BB5 6BZ

Program *Tomahawk* **Type** Arcade **Machine** Amstrad **Price** £9 95 **Supplier** Digital Integration Watchmoor Trade Centre, Watchmoor Road, Camberley, Surrey GU15 3PJ

Tomahawk is an extraordinarily complex simulation of helicopter flight. Helicopter flight, it should be said is even more complicated than flying a plane since you have to worry about controls for torque and vertical lift aside from everthing else

What makes the game though is that more than almost any other simulation the arcade demands of things to blow up and the intellectual demands of flying the helicopter are perfectly mixed There is a powerful impression of realism thanks not only to the sheer accuracy of the controls, but also due to the very impressive 3D graphics However, there are also helicopters, tanks and field guns to attack

This Amstrad version of the game is almost exactly the same as the Spectrum version which was good enough It's perhaps a shame that the Amstrad's extra features like sound were not utilised Nevertheless for Amstrad owners into flight simulators this is the one to go for

Pick of the week

Karate

Program *Karate* **Type** Arcade **Machine** QL **Price** £14 95 **Supplier** Eldersoft The Office Hall Farm N Ockendon Upminster Essex RM14 3QH

Well knock me down with a glancing blow would you believe it? An absolutely marvellous QL game which gives new heart to those currently glumly pondering the fate of Sir Clive's misunderstood machine

Karate is, obviously an *Exploding Fist* variant, but it s beautifully presented and uses the higher screen resolution the QL is capable of

The central figures are large highly detailed and smoothly animated, backgrounds are equally impressive Combat moves can be controlled by joystick Using combinations of diagonals and fire button, a possible 16 moves are available

Aside from bashing the living daylights out of a single opponent, later screens bring in more assorted problems like whizzing spheres time tests where you have to kick a series of what look like rugby balls in a specified limit and finally several inscrutable but vicious opponents on the screen at once

Sound is minimal but fairly effective – about the closest to a bone-cracking thwack the QL can manage is a sort of pwseerk but it's okay An absolute must for everybody looking for arcade games for the QL – and where were games like this a year ago when the machine really needed them?

BBC

Program *Bruce Lee* **Type** Arcade **Machine** BBC **Price** £9 95 **Supplier** US Gold as above

Program *Cosmic Battlezones* **Type** Arcade **Machine** BBC **Price** £9 95 **Supplier** US Gold as above

Program *Early Maths* **Type** Educational **Machine** BBC **Price** £7 95 **Supplier** Willow Software The Willows Wrington Lane Congresbury Bristol BS19 5BQ

Program *Early Words* **Type** Educational **Machine** BBC **Price** £7 95 **Supplier** Willow Software as above

Program *Fontwise* **Type** Utility **Machine** BBC **Price** £20 **Supplier** Clares Micro Supplies 98 Middlewich Road Rudheath Northwich Cheshire CW9 7DA

In recent months Clares has become best known for creating *Fleet Street Editor* for Mirrorsoft but the company has been producing good quality BBC utilities for a while now Latest is *Fontwise Plus*, a disc-based program which allows you to use a whole range of different font styles on text files created using *Wordwise View* and some versions of *Mini Office II*

Although essentially the system only works with unformatted text, this is in practice not much of a restriction – you can do all formatting of text determining line length, margins justifying, underlining, etc You may switch between any of the 12 fonts supplied, from writing a document using control codes and those 12 fonts may also be printed condensed or magnified

It works well, and more importantly it works quite speedily The typical problem with font programs which require data to be sent in large chunks to the dot matrix printer, is that they take aeons to do the job – not the case here

Fontwise Plus is a good utility well documented, and fairly easy to use

Commodore

Program *Empire* **Type** Arcade **Machine** Commodore 64 **Price** £9 95 **Supplier** Firebird, Wellington House Upper St Mar

tine Lane, London WC2H 9DL

Program *Guitar Studio 1* **Type** Utility **Machine** Commodore 64 **Price** £9 95cassette £11 95disc **Supplier** Micro Music St Michaels Chambers Spurriergate York Y01 1QR

Program *Guitar Studio 2* **Type** Utility **Machine** Commodore 64 **Price** £9 95cassette £11 95disc **Supplier** Micro Music as above

Program *PSI 5 Trading Company* **Type** Strategy **Machine** Commodore 64 **Price** £9 95 **Supplier** US Gold as above

Program *Mail 64* **Type** Utility **Machine** Commodore64 **Price** £14 95 **Supplier** Initiative Managers 95 Worcester Road, Malvern Worcestershire

Mail 64/1541 looks to be a useful utility for clubs and other organisations where it is sometimes necessary to send out a series of letters to a large number of people

The disc based system combines a database on which names and addresses can be stored

There are a variety of options to print all or some of those names on to sticky labels

It works very simply but well enough You may flip through and amend existing records, choose which addresses to print by selecting a give line of tect ot define which files are to be printed eg all those whith Smith in the surname or whatever

A straightforward enough program but well designed and relatively cheap at £14 95

Program *The Comet Game* **Type** Arcade **Machine** Commodore 64 **Price** £7 95 **Supplier** Firebird as above



Dragon 32

Program *Aquanaut 471* **Type** Arcade **Machine** Dragon 32 **Price** £5 95 **Supplier** Microdeal. PO Box 86 St Austell Cornwall

Program *Rommel 3D* **Type** Arcade **Machine** Dragon 32 **Price** £5 95 **Supplier** Microdeal as above

Program *The Vortex Factor* **Type** Arcade **Machine** Dragon 32 **Price** £5 95 **Supplier** Microdeal as above

MSX

Program *Gunfright* **Type** Arcade **Machine** MSX **Price** £9 95 **Supplier** US Gold as above

QL

Program *Assembler Workbench* **Type** Utility **Machine** QL **Price** £24 95 **Supplier** Talent, Curran Building 101 St James Road Glasgow G4 0NS



Spectrum

Program *Ballblazer* **Type** Arcade **Machine** Spectrum **Price** 28 95 **Supplier** Activision 15 Harley House London NW1

Program *Music Box* **Type** Utility **Machine** Spectrum **Price** £11 95 **Supplier** Cosmic Pop PO Box 475 London E4 9UD

Program *Spiney Norman* **Type** Arcade **Machine** Spectrum **Price** £1 99 **Supplier** Firebird as

Program *Raging Beast* **Type** Arcade **Machine** Spectrum **Price** £1 99 **Supplier** Firebird, Wellington House Upper St Martins Lane London WC2H 9DL

Raging Beast (which seems to be called *Ole* on the title screen) is a matador simulation although fortunately for those of us with squeamish sensibilities the bull doesn t get stabbed darted, or any other way come to a sticky end Good news for animal lovers

The point of the game is simple, to make as many passes as you can which basically means holding out the red cloak and hoping you can get out of the way when the beast



out of the way when the beast comes for you If you get stomped on by the bull aside from acrobatically spinning through the air you can redeem the situation by attempting to jump on to the bull s back – the longer you can hang on the more points you get. If you become sufficiently dextrous with the cape to score enough passes, a hoop is thrown from the audience for you to place over the bull's head Chances are though that your most common sight will be the two guys with the stretcher once more carting your battered body out of the arena

Rather a clever game in many ways, certainly a change My only real objection is that the graphics although nicely animated are incredibly small

Program *Seabase* **Type** Arcade **Machine** Spectrum **Price** £1 99 **Supplier** Firebird as above

Program *The Planets* **Type** Strategy **Machine** Spectrum **Price** £9 95 **Supplier** Martech House Bay Terrace Pevensey Bay E Sussex BN24 6EE

Charts

Top Twenty

1	(2)	Commando *(Various)*	Elite
2	(6)	They Sold (2) *(Spectrum, C64, Amstrad)*	Hit Squad
3	(1)	Bomb Jack *(Spectrum, C64)*	Elite
4	(8)	V *(Spectrum, C64)*	Ocean
5	(–)	PSI-5 Trading Company *(C64)*	US Gold
6	(4)	Comp Hits 10 Vol 2 *(Various)*	Beau Jolly
7	(7)	Way Of The Tiger *(Spectrum, Amstrad)*	Gremlin Graphics
8	(17)	Superbowl *(Spectrum, C64)*	Ocean
9	(8)	Green Beret *(Spectrum)*	Imagine
10	(5)	Last V8 *(C64, Amstrad, Atari)*	Mastertronic
11	(3)	Formula One Simulator *(Various)*	Mastertronic
12	(14)	Turbo Esprit *(Spectrum, Amstrad)*	Durell
13	(–)	Starstrike 2 *(Spectrum)*	Realtime
14	(15)	Spellbound *(Spectrum C64 Amstrad)*	Mastertronic
15	(–)	Off The Hook *(Spectrum, C64)*	Off The Hook
16	(12)	Heavy On the Magik *(Spectrum)*	Gargoyle Games
17	(–)	Yie Ar Kung Fu *(Various)*	Imagine
18	(11)	One Man And His Droid *(Various)*	Mastertronic
19	(–)	Samantha Fox Strip Poker *(Spectrum)*	Martech
20	(–)	F A Cup Football *(Spectrum, C64, Amstrad)*	Virgin

Commando – No 1

Bombjack – going down

Top Tens

All figures compiled by Gallup/Microscope

Amstrad

1	(–)	Commando	(Elite)
2	(1)	Last V8	(Mastertronic)
3	(4)	They Sold (2)	(Hit Squad)
4	(2)	Spindizzy	(Electric Dreams)
5	(6)	Way Of The Tiger	(Gremlin)
6	(3)	Into Oblivion	(Mastertronic)
7	(–)	Saboteur	(Durell)
8	(10)	Comp Hits 10 (2)	(Beau Jolly)
9	(7)	Get Dexter	(PSS)
10	(–)	Rock N Wrestle	(M'bourne H'se)

Rock 'N Wrestle – at No 10

Commodore 64

1	(–)	PSI-5 Trding Company	(US Gold)
2	(3)	They Sold (2)	(Hit Squad)
3	(1)	Bomb Jack	(Elite)
4	(5)	Uridium	(Hewson Consultants)
5	(4)	V	(Ocean)
6	(8)	Kane	(Mastertronic)
7	(–)	Off The Hook	(Off The Hook)
8	(–)	Spellbound	(Mastertronic)
9	(–)	Breakdance	(Americana)
10	(–)	Hardball	(US Gold)

Atari

1	(1)	Last V8	(Mastertronic)
2	(2)	One Man & his Droid	(Mastertrc)
3	(–)	New York City	(Americana)
4	(3)	Action Biker	(Mastertronic)
5	(–)	Shamus	(Americana)
6	(–)	Ollies Follies	(Americana)
7	(10)	Arcade Classics	(Datasoft)
8	(–)	Scooter	(Americana)
9	(9)	Steve Davis Snooker	(CDS)
10	(4)	Fighter Pilot	(Digital Integration)

BBC

1	(1)	Commando	(Elite)
2	(3)	Winter Olympics	(Tynesoft)
3	(2)	Karate Combat	(Superior)
4	(6)	Tennis	(Bug Byte)
5	(7)	Citadel	(Superior)
6	(4)	Comp Hits 10 Vol 2	(Beau Jolly)
7	(8)	Firefox Combat	(Doctor Soft)
8	(–)	Speech	(Superior)
9	(–)	Moon Cresta	(Incentive)
10	(10)	Yie Ar Kung Fu	(Imagine)

Spectrum

1	(1)	Green Beret	(Imagine)
2	(16)	Starstrike 2	(Realtime)
3	(8)	V	(Ocean)
4	(–)	Superbowl	(Ocean)
5	(2)	Bomb Jack	(Elite)
6	(3)	Hvy On The Magik	(Gargoyle G)
7	(4)	Way Of The Tiger	(Gremlin)
8	(9)	Turbo Esprit	(Durell)
9	(–)	Sport Of Kings	(Mastertronic)
10	(–)	Sam Fox Strip Pokr	(Martech)

NEXT WEEK

The next issue of *Popular* will be packed with all the latest news and reviews – the brand new products from the Sinclair and Commodore shows – plus all our regular features

● Colour Feature

The Price of Magik is the brand new addition to Level 9's impressive catalogue. Read our comprehensive review – plus playing tips

● At last, the Amiga arrives

Two shows take place next weekend of particular interest to Commodore and Sinclair users. We'll have a full report on the UK launch of the Amiga at the Commodore Computer Show – plus all the other goodies on display, of course. And news from the 19th ZX Microfair – any bets on Amstrad taking a stand?

● Readers' Survey

Your chance to tell us what you think of the magazine

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The Hackers

This stuff is GREAT! It looks like complete garbage! And...

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No! Let me have my say! The encryption system that produced this is a world-beater, and...

!!?

-But that's the user manual.


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